The Builder.

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Ivory, and Works in Ivory.

R. MASKELL'S Handbook of Ivories, Ancient and Mediæval,* is chiefly valuable as a *précis* and index of the literature of the subject, illustrated by reference to the most striking examples known to the author, whether in the British Museum, the South Kensington Museum, or elsewhere. With regard to the critical character of the book, the writer has, perhaps, allowed himself to be too much seduced by the fascinating nature of his special study. The woodcut at page 36 is very far from justifying such a remark as, "looking at it, can we hesitate to claim for the earliest Christian art, after Christianity was recognised by Constantine, a place by the side of the best works of pagan times?" The remark, of course, applies not to the woodcut itself, but to its subject, the leaf of a diptych in the British Museum. Those who are familiar with Greek art, and even with Classic work of much later date than the time of Alexander the Great, would feel disposed to read no further than such a sentence. In this, however, they would be wrong. The work is one of much interest, and deserves to be read.

As to that portion of the lore of the ivory-carver which relates to the method of his toil, the peculiar excellences and defects of his material, and the distinct methods of handling which are proper to the different purposes to which ivory sculpture is applicable, the Handbook is silent. Nor is this, perhaps, to be regretted; for we find (p. 3), a statement between turned commas as to African and Asiatic ivory, which, if not absolutely incorrect, is yet very far from giving an adequate view of the subject. Mr. Maskell says that African ivory, "when recently cut, is of a mellow, warm, transparent tint, with scarcely any appearance of grain, in which state it is called *transparent* or *green* ivory; but, as the oil dries up by exposure to the air, it becomes lighter in colour." Three or four very distinct matters are here confused. All ivory, so far as our experience extends, when fresh and young, whether coming from the tusk of a young animal, or from the finer portions of an older tusk, is more or less gelatinous in its appearance, and yields with comparative freedom to the tool. It is the exposure, not to the air, but to heat, whether climatic or artificial, that dries, hardens, and whitens this fresh ivory. The mere conveyance of objects carved in a cool to a warmer climate, without any exposure to air or light, is sufficient to cover them with a coating of exuded gum, insoluble, or, at least, not readily soluble, in water, but readily soluble in spirit. This gum exudes from the action of the summer heat of the south of Europe. We speak, of course, from definite experience. Owing to the great heat of India, most ivory objects arriving in England from that country have had this gum driven out by the heat, and thus, while differing much in grain, are generally characterised by a hard and comparatively brittle texture. Their whiteness depends chiefly on the exposure to light. Without exposure to both light and heat, such as we only obtain from the sun in this country in a few weeks of the summer, ivory will never assume its proper creamy or marble white hue. If young ivory, however, be exposed to a heat proper to blanch it, without proper precaution, it cracks. It is very rare to find ivory carvings without black, unseemly lines. These are either formed by shakes in the material, or by sun-cracks. Shakes are of two kinds: those which were produced during the lifetime of the elephant, and those which have been produced since the tusk was severed from the skull of the animal. The former have been produced either by fighting, or by blows against trees or stones while the animal was living. They render the part of the tusk where they occur valueless, or nearly so, as they are liable to part asunder when the ivory is sawn into portions. The latter kind of shakes appear frequently to have been produced by the use of the hammer and chisel. Ivory lends itself freely to this, the true sculptural, treatment. But the chisel, which ought to be sharp and of good temper, rapidly blunts; and a little misdirected energy will then inflict mischievous shakes on the ivory. A fall, a blow, or, as before said, unguarded exposure to undue heat, even by being left in a window looking to the south on a midsummer day, or on the fender of a fire-place, may produce the same result. These shakes and sun-marks are at first almost invisible. But very shortly a black substance forms in the fissure, which, we apprehend, is of fungoid origin. In this case, as well as in that of injury to the living tusk, black lines form; and indelibly seam the pure surface of the ivory. We apprehend that the application of a silicious varnish as soon as the damage occurs may arrest the progress of the disfigurement.

What the dealers now call green ivory was almost unknown, to the best of our experience, in this country, thirty years ago. Certainly the ivory-turners and handle-makers of Birmingham, Liverpool, and London, had no such special supply of this peculiar ivory as is now the case. It is, we understand, of African origin. It is more gelatinous and transparent in its first appearance than any other fresh ivory, unless it be the very finest specimens of the white tusks we shall presently mention, and by gradual exposure, extending over at least two summers, to properly regulated light and heat, it assumes a pure milky whiteness which is more beautiful than any other tint to be found in the material. We use the word milky rather than creamy, as the first appearance of the tusk when cut is like that of milk when thrown in a jet from the animal, and the yellow tint of rich cream is not attained by this kind of ivory. To the chisel or burin it yields with a sharp clear cut, which rather resembles that of fine stone than of any animal substance. It is susceptible of the most exquisite finish. The distinctive mark of this ivory, in the tusk, is a corrugated surface, somewhat resembling that of the tooth of the hippopotamus. It must be the product of a special race of elephants, if it has not even a claim to a specific designation; and we shall be very glad if any African travellers or hunters will complete the sketch thus drawn from our own experience. The price of this ivory is high, reaching as much at times as 20s. per pound for large and well-shaped pieces. We have not bought it in the tusk.

There is another kind of African ivory which has been sold to us as Egyptian. It is, when blanched, of a much softer texture than the green ivory, and has a creamy colour. The tusks are perfectly smooth, and very white, giving the idea of coming from a white species of elephant. Its behaviour under the tool to some degree resembles that of clay; as with a sharp graver it can be cut almost as clay is modelled by the tool. But the special peculiarity of this kind of ivory is its liability to bruise. If put in a vice, or subjected to a blow or violent pressure on a small spot, it behaves almost like the human skin. A slight discolouration ensues, which penetrates into the ivory in proportion to the violence of the pressure, and leaves a positive bruise, or lesion of the texture, which is irremovable by any means known to us. Even a fall on a stone floor will produce a bruise of this kind. This ivory, however, is less liable to crack than other species, although small cracks are not uncommon in the tusks.

In all kinds of ivory, with the exception of the green, or corrugated sort, the great indication of excellence is the whiteness and freedom from cracks of the outside of the tusk. No coating of true dentine, or hard matter, occurs in any tusk of the elephant. But the corrugated ivory has a sort of skin of rougher and harder texture than the interior; and in all tusks a slight discoloration and hardening occurs, varying from the sixteenth of an inch to greater depths. In the tusks of the hippopotamus the exterior is much harder than in the tusk of the elephant, and the structure of a true tooth is more closely resembled. Hippopotamus ivory is neither so hard nor so white, when blanched, as true ivory. And it is incomparably more subject to suffer from suncracks, even under a comparatively feeble exposure to the rays of the sun. Some of the white tusks have an extreme delicacy of tissue, which, although the artist can at once distinguish it, by the burin, from the

* South Kensington Museum Hand-books: Ivories, Ancient and Mediæval. By William Maskell. Chapman & Hall.

corrugated ivory, yields to the other neither in closeness nor in ultimate whiteness.

On the subject of the production of large plates of ivory from moderate-sized tusks, we are unable to speak with absolute certitude. But we have some reason for the opinion that the continued application of pressure under boiling water may unroll a hollow section of tusk, so as to allow of the sawing out of flat plates. Certainly the effect of heat on the texture of ivory is very powerful; that of dry heat is, sooner or later, destructive; and, not only so, but light itself appears to have a direct chemical action on ivory. French carvings exposed under glass to direct sunlight, even without any considerable heat, gradually lose their fibrous texture, and have a tendency to disintegration. A small degree of pressure will then crush the material, and make it crumble like alabaster. The gradual elimination of the glutinous matter is probably the cause of this change of structure. Lapse of time, in the case of Assyrian and Egyptian ivories, appears to have had a similiar effect. But then it must be remembered that it is lapse of time in a very hot climate, and that the frequent recurrence of the summer temperature may by degrees evaporate all traces of gluten from the ivory. We have little doubt that a fuller study of the subject, with the aid of a microscope, would enable us to distinguish the race of elephants from which any ivory, ancient or modern, was obtained.

Mr. Maskell very properly observes that what is called the fossil ivory of Russia "has not undergone the change usually understood in connexion with the term fossil." These tusks are those of the mammoth, or *Elephas primigenius*, a fellow inhabitant of Europe with extinct forms of the human family. The absence of change during so long a period is due, we can have little doubt, to low temperature and concealment from light. It will be in the recollection of many of our readers that an undecayed mammoth, tusks and all, embedded in the ice of the Lena, had been so preserved by congelation that the flesh was eaten by wolves when the creature was thawed on exposure to the air.

A word or two should be added to the very interesting historic sketch of Mr. Maskell, as to the purposes to which ivory is most properly applicable in art, and the special mode of art treatment proper to each case.

The lowest, and one of the earliest, methods of application is that of what we usually call veneer,—that is to say, of a thin plate of material applied to portions of a wooden or metal fabric. The pure colour, and smooth and glossy surface, obtainable from ivory, led to its use in this way, in the same way that the precious metals, precious woods, and shell of the tortoise have been applied from remote antiqnity. In our own day this use of ivory is chiefly adopted for the covers of books, especially prayer-books, and no binding is more durably brilliant. A somewhat similar application is found in the palace at Copenhagen (if we recollect aright), at the present day, where the pendents of a highly-ornamented ceiling are made of ivory. To this method of inlay of plaques, or heightening the effect of wood-carving by the introduction of ivory, reference is probably made in Psalm xlv., as well as by the Prophet Amos. The phrase, "Bethi hashen,"—houses of tooth,—used by the latter writer, is, in our opinion, far better rendered "palaces of ivory," that is to say, adorned with ivory, than "wardrobe," or "vestry," according to Mr. Maskell's translation of the equivalent phrase in the former passage. Again, in the passage in Ezekiel, where the Authorised Version has "benches of ivory," and St. Jerome has *transtra*, the Septuagint has "temples"; and Gesenius translates the word by "boards." Benches or beams of ivory would be out of the question. The use of this material for inlay seems to be indicated in each passage. The throne of ivory of Solomon was not altogether unlike the curule chairs of the Roman dignitaries, and the mixture of ivory with gold in this throne recalls the chryselephantine work of the Greeks.

This leads to the consideration of the second application of ivory, namely, to furniture. Thrones or chairs are among the earliest examples of this use; but caskets, no doubt, are at least of equal antiquity. Ivory caskets are often boldly carved; and the inlay of carvings, in high relief, in wood, or even in metal, is akin to this use of the material. Under this head, also, we rank the diptyches and triptyches; for a good account of which we refer to Mr. Maskell's volume. These carved slabs were the lineal ancestors of the bindings of our actual books. The natural form of writings on parchment is that of a roll; and highly ornamental rollers were common for the purpose of supporting a valuable manuscript. Fine specimens of these are to be seen at South Kensington. The introduction of paper, however, was in lieu not of the parchment roll, but of the waxen tablet. In China, paper is printed only on one side, and then, though not rolled, is folded in a long strip. For maps and sections that mode is excellent. But the paged book is the improvement of the waxed tablet; and thus the boards of the book so clearly keep the form of the leaves of the Roman diptych, that ancient classic specimens, of pagan character have been utilised for binding missals. The use of the material for cups and vases, which allow of great splendour and beauty, although they are not so durably useful as silver, also ranks under this head. The style of handling in these instances is usually bold, heavy, and in deep relief,—little, if at all, differing from work in fine wood.

Of the third kind of ivory work we have to speak with much reserve; not only from the fact of its entire disappearance, but also from the circumstance that it is difficult to reconcile the high terms in which the chryselephantine work of the Greeks is commemorated, with the most generally received canons as to sculptural purity and excellence. But when we find that Phidias thus wrought, and wrought in his most famous work, we must admit that criticism may well be modest. What we have seen in modern times of the combination of ivory with other materials, or of the similar combination of white and black marble, or of alabaster, or coloured marble, with bronze, does not recommend itself to a taste of any severity. It is possible, however, that the cause of this may lie rather in the manner of the artist than in the exigencies of the material. The modern French works of this class may not unjustly be called meretricious. But, unfortunately, many French sculptors of the day contrive to deserve that adjective even when they work in *terra cotta*. Still there can be but little doubt that all such admixtures are rather sumptuous, splendid, and costly, than artistic in the highest sense of the term. Nor is it impossible that the exceeding splendour of the colossal statue, formed from the most costly, as well as the purest, materials, was one main cause of the powerful impression produced by the great figure of Pallas. We cannot doubt that the abstracted, motionless, passionless, countenance which Phidias gave to the immortals,—and, to a certain extent, to his heroes,—was reproduced in the great chryselephantine goddess. A colossal statue, priceless in its materials, imposing from its position and illumination, sanctified by a halo of religious awe, and solemn in the passionless majesty of the great Greek style, may well have been a masterpiece of one of the first artists of all time.

From religious art of this nature the transition is easy to those smaller objects, statuettes of sacred or of domestic character, to which the beautiful material furnished by the elephant so readily lends itself.

With regard to ivory statuettes, it is to be regretted that neither Mr. Maskell's book nor, so far as we are aware, the Museum at South Kensington, is enriched by any account or specimens of the exquisite figures which were produced some thirty years ago by Mr. Cheverton. They were mechanical reductions from famous originals, and were produced by a drill. The surface thus formed was entirely free from the facets which are the great defect of inferior work in ivory, and no less free from the vulgar polish which it is so easy to obtain by the use of whiting and water. It closely resembled the texture of the human skin, and was perfectly adapted to the exquisite delicacy of the material.

Sculpture in the round, however, is not the true treatment of ivory. The statuette must be so small, that only the most masterly hand can redeem it from the character of a toy. The same amount of artistic toil applied to silver or to bronze will produce work that is at once more effective, and more durable. The true function of ivory is to yield material for cameo, or work in relief. For this, within its natural limits as to size, it is unapproachable. Relief carving in ivory allows to the artist a wider range in style and mode of handling than any other material whatever. It allows of the breadth of touch proper to the wood-carver; and of the microscopic delicacy of the gem-sculptor. There is, indeed, as we have before intimated, a great difference in the texture or grain of different kinds of ivory; a difference quite corresponding to the different degrees of delicacy of workmanship of which we speak. Coarse-grained ivory is not inappropriate to such bold plaques as are filled by the *amorini* of Il Fiorentino; works well known to the frequenters of South Kensington. On the other hand, a fine young piece of green ivory admits of the execution of a cameo of delicacy and boldness equal to anything that can be wrought in onyx, carnelian, or any other hard and precious stone. The perishability of the material is the only drawback to its value. But, on the other hand, it can be worked with far greater rapidity than any *pietra dura*.

The chief interest in Mr. Maskell's book lies in the mode in which it illustrates the relation of this special and rare branch of art work, not only to all other branches, but to history, to religious opinion, and to ethnology. Periods that are otherwise very blank as to their relics, are illustrated by ancient carvings. The dawn of human art is pushed back, by the carving figured on p. 11, to a period more remote than our ancestors could have dreamed of. Making all such reserve as is unfortunately now too necessary as to authenticity, the sketch of a mammoth, engraved on a piece of the ivory furnished by that extinct proboscidean, denotes a high order of artistic feeling amongst tribes of an antiquity so remote that they might almost have been the inhabitants of another planet, so far as regarded the probability of our discovering any relics of their work. Again, the spirit and force of the outline of a ruminant, on p. 9, is something very unlike the work of a savage. It is impossible to examine these products of recent excavations in caves in the Dordogne without a feeling of awe. They repeat, in still more impressive tones, the lesson taught by the discoveries of Dr. Schlieman in the Troad. They show that race has succeeded race, not in order of development, or according to any process of natural selection, but according to some more subtle and far-reaching law. It is, no doubt, in some cases the civilised, who has conquered the savage, man. But in other instances the sequence has been reversed. Wilder and ruder tribes have stamped out the light of nobler races, as the Tartar hordes have done within the limits of modern history. There is ample room for a work of the utmost interest, which should be limited to the illustration of the ethnological, artistical, and religious history of man by the relics of the work of the carver in ivory. At the same time, visitors to South Kensington should provide themselves with Mr. Maskell's Handbook.

PORTRAITS AT BURLINGTON HOUSE.

THE seventh winter loan exhibition at the rooms of the Royal Academy is strong in portraits, which, those of the British school especially, form even numerically a very large proportion of the works exhibited, and on the whole constitute the chief interest of this year's collection, which, in comparison with some of its predecessors, is somewhat deficient in the highest class of pictures of a more imaginative and ideal type. The portraits, too, have been well selected and arranged so as to give a certain degree of speciality to the exhibition, and the double interest of portraiture, in regard to the power of the artist and to the character and personality of the sitter, has full illustration in this exhibition.

The two great English portrait-painters of the past, Reynolds and Gainsborough, are of course largely represented; but in one respect they do not stand so entirely unrivalled among their compeers as formerly. There can be no doubt that one effect of this admirable and delightful institution of the annual loan exhibition has been to raise very much, in modern estimation, the name of a third English portrait-painter, who, during his life and for long after his death, did not receive the honour that was justly his due; and now instead of speaking of Reynolds and Gainsborough only, we are tempted to make a *trio* of it, and speak of Reynolds, Gainsborough, and Romney. We do not mean to say that Romney had either the same power or the same versatility as his two great contemporaries, and it must be admitted that Reynolds is not, taking the average of his works exhibited, quite seen at his best in this year's exhibition; but there is enough in the six works by Romney which find place here to confirm the opinion which the last exhibition suggested, that as a portrait-painter and within perhaps certain limits, he may claim a place considerably nearer to Reynolds than has been commonly assigned to him.

Romney heads the catalogue with his half-length of "Elizabeth, Duchess Countess of Sutherland" (1), a side-face portrait of a young lady of a delicate and refined type of beauty, and illustrating in a high degree that union of dignity with sweetness which is so conspicuous in the feminine portraits by the great painters of that period. How is it, one is tempted to ask, that we so rarely see anything approaching to this type in the modern portraits which are sent to the Academy Exhibition? Portraits of "pretty girls," as the phrase is, are not unfrequent, but what has become of the sort of feminine portrait which the trio among whom we have classed Romney used to turn out? Is it that our modern painters, unquestionable as is the genius which some of them possess, are less able to appreciate and express the "ladyism" of a lady? or is it that a different class of persons get their portraits painted? or, finally, must we think that the lady of Reynolds and Romney no longer exists,—that the wider range of modern education and the influence of the show and bustle of modern life have deteriorated this crowning growth of civilised society? If so, we have paid a heavy price for "culture." Whichever be the explanation, the fact remains that we rarely if ever see a modern portrait of a lady recalling that peculiar grace and dignity which are of every-day recurrence in the portraits by Reynolds and his two compeers. Leaving that, however, as a passing reflection, we remark that Romney's real triumph in this collection rests on his family group of the children of the "Second Earl Gower" (70), lent by the Duke of Sutherland; where one daughter, a grown-up young lady, in flowing white robes, beats a tambourine, while the four others, all children, dance round in a ring. Never was a happier effort in child-portraiture than this joyous group, more especially the elder of the four looking up at her sister, and the sunshiny face of the little boy in the full glee of the dance. The face of the player is painted with great finish and delicacy, and her attitude is charming, but perhaps a little too quiescent for her occupation. The picture is an evident "bid" against Reynolds, being quite according to his ideal; there is a difference, distinct enough though not easy to define, between the excellence of Romney and that of the "P. R. A."; perhaps to be distinguished mainly in a comparative want of fulness and richness of texture in Romney's manipulation, and of that peculiar ease and *abandon* which seems a kind of inspiration in Reynolds's portraits of this class. Romney's portrait of "Lady Hamilton" as a peasant at her spinning-wheel (246) hangs next to Boucher's "Madame de Pompadour"; an instance of the effective groupings which have been made in hanging a good many of the portraits. These two are almost startling in artistic and social contrast of character: the French lady, with her small pretty head and characterless face, reclining in elegant indolence on a sofa, in a beflowered and beribboned dress, and amid all those showy knick-knacks which Boucher and his school delighted to paint; the other figure in plain white dress, without an ornament on or around her, painted in a broad, comparatively sketchy style, and just turning up her face as if in act to speak—and such a face! It is not often that the painter has such a model as that before him, so far, at least, as outward beauty and perfection are concerned.

Of the numerous Reynolds's, some are finer in execution, but none superior in interest to, the portrait of Miss Morris as "Hope nursing Love" (18), which does not need her melancholy and half-romantic story to win the attention of the spectator. Reynolds seldom painted a more charming figure than this young girl, with the full contour of face and rich masses of hair above it; she is of a peculiar and very fine type of beauty; her green and crimson drapery makes a full rich harmony with the dark foliage behind. The same room contains "Mrs. Nisbett as Circe" (34), with a cat and a leopard, the latter of doubtful construction. The execution of this picture is superb, but the figure is a little stiff and formal, and the face certainly not interesting. Some interest attaches to Angelica Kauffmann's portrait of Reynolds himself (45), which has a more bold and broad character and manner than is generally attributed either to the style of the fair artist or to the personality of her distinguished sitter. Among other portraits in the first room, the "Sir Francis Bassett" (8) is a model Gainsborough: a youngish man in blue coat (half-length), whose figure and attitude show in perfection that ease and grace of pose which Gainsborough, in his portraits of men, carried further than any other painter, without sacrificing dignity. The distinguishing character of Gainsborough's portraits of men, as compared with Reynolds's, is perhaps in this apparently easy and unstudied attitude, as if the movement of the sitter were arrested and caught at one single moment. A portrait of the same sitter, by Jackson, finds place in this room on the opposite wall, one instance out of several in which various portraits of the same person have been secured, and afford interesting opportunities of comparison. Jackson's likeness looks older than the other, and is stiffer in manner, but is a very capital and manly-looking portrait. Reynolds's "John Paterson, Chairman of the Blackfriars Bridge Committee, 1776," is in this room,—a specimen of the artist's best style.

Gallery II. is remarkable, besides the Romney group before mentioned, for no fewer than four David Garricks, by Reynolds, Gainsborough, Dance, and Hogarth respectively. The first shows him in the character of *Kitely*, and seems to be intended as a metamorphosis of David's natural expression. Gainsborough's full length, in which the actor leans against a pedestal, on which stands Shakspeare's bust (in commemoration of the celebrated piece of "high jinks" at Stratford), might be, in Mrs. Garrick's eyes, "the best portrait ever painted of her Davie"; but it is not so natural and pleasant a one as that by Reynolds (not in this exhibition), where the actor sits with the points of his fingers pressed together, and his countenance truly answering to Goldsmith's line,—

"An abridgment of all that is pleasant in man."

Hogarth's well-known portrait, where Mrs. Garrick leans over her husband's shoulder to pull the pen out of his hand, shows the painter's proclivities in an amusing manner in the slight exaggeration of the points of the countenance as compared with the other portraits. There is a very after-dinner look about David in this picture, as he sits "inditing a good matter" for his prologue; but the whole thing is a brilliant performance.

What a contrast to step through the doorway into Gallery III., and stand before certain Vandycks. The very force of aristocratic stiffness is in the figure and attitude of "Prince Maurice" (104). Granting Vandyck's splendid power in his familiar stamp of portrait, where, in the case of the ladies, the picture often seems to consist of a richly-painted satin dress, with an insipid face at the top of it (see the "Countess of Monmouth," for instance,—110), we may safely stand on our Reynolds and Gainsborough as greater than he in real spontaneity and freshness of genius. Contrast the graceful and natural attitude in Reynolds's "Mrs. Bouverie" (108), for instance, and the delicate tones of her drapery, and the effective and yet unforced composition of the whole, with these stiff satined and brocaded pillars of aristocracy. Vandyck, of course, had to paint what came before him, but his portaits, supereminent as they are in some qualities, certainly do not attract us like those of the English artist; there is too little humanity in them. Velasquez is most characteristically represented in the equestrian portrait of the statesman Olivarez (116), seated almost on the shoulders of his horse in the way which the Spanish horsemanship of the period seems to have approved, and with the complete unity of action between horse and man which Velasquez realises in his equestrian figures, who always sit their horses in a sort of cool, collected, easy-chair manner, as if to be on a rearing horse were their normal position. If physiognomy is any guide to character, we may say that a greater rascal than "Don Gaspar de Guzman, Count Olivarez" never drew bridle. "The Head of a Spanish Gentleman" (121), by the same artist, is a capital specimen of strong, bold, direct painting, without a suspicion of humbug in it; and there is a great deal of interest in his melancholy-looking portrait of a lady (117), who seems as if she had a history of some kind. Over this is one of the two Giorgione portraits (118), a most interesting head, a thin, nervous, eager countenance, with a long straight nose and very refined mouth; a picture as intensely Italian as the "gentleman" of Velasquez is intensely Spanish. The other Giorgione portrait (128) is a half-length of a figure, of delicate features and hands, in a dark velvet dress; it is noticeable that both the cut of the dress and the attitude of the figure are remarkably similar (but reversed) to those in a portrait of Borgia by Raffaelle, we forget where at this moment. Titian's "Ariosto," in which the great artist remarkably combines romance with realism of expression, and Reynolds's Lord Thurlow, are among other portraits in this room, characteristic respectively of Italy and England alike in their artistic qualities and in the personality of the subjects. We cannot omit reference to the remarkably individual portrait of "Contessina Mattei" by Andrea del Sarto (135); a remarkable face, painted with great care and finish, though a little too "smoothed down" in execution.

This latter description might perhaps be held to apply to the portrait called a "Leonardo da Vinci" (185), in Gallery IV.: a head and bust of a lady of not very interesting countenance, who with the right hand lifts the lid of a small vase she carries in the left. It no doubt is in the style of Leonardo; but is it proved to be his; or, if so, is it untouched? We should incline to feel doubtful on either point, in the absence of conclusive evidence. The work is effectively contrasted wtth the portrait of Doña Maria Padilla, by El Mudo (176), a dark, gipsy-looking face, cloaked up to the chin,—a very characteristic work. We may just mention the presence, in Gallery V., of Phillips's portrait of Byron, so well known from engravings, and in Gallery X. Vandyck's much-less known and very remarkable portrait of "Robert Boyle, first Earl of Burlington." In glancing at the Reynoldses in the first room, we omitted one too characteristic to be passed over,—Mrs. Abington, as "Miss Prue," the hoyden in Congreve's surpassingly brilliant though licentious comedy, "Love for Love"; she is the very ideal of the character, as she sits leaning over the back of her chair, and sulkily biting her thumb. The tone of the painting is peculiar and not agreeable to the eye, though the humour of it is admirable.

Of the works other than portraits, the principal ones are mostly too well known to require comment. Some of the more out-of-the-way specimens we may take opportunity briefly to "specify, when time and place shall serve."

THE ERITH STRIKE.

WE look with fear and trembling for the next step that will be taken by the Iron Trades Employers' Association in respect of the strike against Messrs. Easton & Anderson, the engineers, of Erith, brought about by the orders of the Amalgamated Society of Engineers and the Engine Makers' Society. The strike is in opposition to the asserted extension of the principle of piece-work, and although only 200 men have gone out (some 500 others remaining at the same establishment), the masters view the step as the commencement of an organised assault under which, if they stand quietly by while each of their fellows is attacked in detail, they must fall. The Employers' Association have accordingly fixed to meet on, this, Friday, the 14th inst., to consider the advisability of a general lock-out of the workmen in their employ as against the interference of the Unions. The men on strike have no complaint, as we understand, against the prices offered or the treatment they receive from their employers; they were ordered to go out, and they obeyed.

Our opinion on the subject of piece-work,—the right of either master or man so to work,—has been too often expressed to need repetition. Piece-work and sub-contracting are the only doors through which the workman can hope to pass to the class above him. The number of those who have passed through these doors is considerable. In some trades the men would strike if piece-work were not given by the masters; in others, as we see, a determined war is waged against it by order of the Unions. The question, however, just now, is not the desirability or otherwise of permitting piece-work. The question is, shall not employers be permitted to offer work in such shape as seems to them best? shall not men be allowed to use their own discretion as to whether or not they will accept the work so offered? The masters have the outside world with them on this occasion. If they should determine on a lock-out they would be generally excused; few, however, who might have said "quite right," reflecting on the amount of suffering and misery which such a step would involve, notwithstanding the considerable sums which the Amalgamated Society of Engineers have at their disposal. We earnestly trust that matters may take such a turn as will avert the terrible misfortune which at present looms large in the distance.

ARCHÆOLOGY OF ROME.

THE most recent instalment of Mr. Parker's indefatigably pursued illustration of the archæology of Rome,* forming the fourth "Part" of his publications on the subject up to the present time, is, so far as regards the bulk of the volume, a supplement to the three first parts (which together form Vol. I.), giving fuller information and illustration as to various remains less fully illustrated in the previous portions of the work, or which have been further investigated since those earlier portions were published. The "Part IV.," describing the Egyptian obelisks, is therefore in fact but a very small proportion of the volume to which it gives the title. It contains a concise account of the Egyptian obelisks in Rome, drawn up entirely from the inscriptions on these interesting monuments, which are thus made to tell their own story to the northern barbarians. The inscriptions are of three classes, each conveying its own species of record. "Those of the Popes record when each was placed in its present situation. Those of the Emperors state on what occasion each was brought to Rome. The hieroglyphics give the original history of each in Egypt. One of them only was made for the Romans, or is of their time; the others are much older, and belong to the history of Egypt." The hieroglyphics have been translated for the author by an eminent Egyptian scholar, residing for a time in Rome, who declines to have his name published; but the reader has the guarantee of the authority of Dr. Birch and Mr. Bonomi for the accuracy of the translations.

Of the nine obelisks described in this chapter, illustrations by photo-engraving are given of four; those in the Piazza del Laterano, in Monte Citorio, in the Piazza della Minerva, and in the Piazza Navona. Of these and the other five a full account is given in the chapter which forms the bulk of the text; but we cannot help saying that Mr. Parker's method (if it can be so called) both in this part of the volume and in the more extensive supplement, is deplorably confused and devoid of method. The information about the dates and original founders of the nine obelisks is given twice over, and in the case of the four which are illustrated, four times over: first in the table of contents, then in the succeeding chapter, then in a schedule at the close of the chapter, and once more in the descriptive note appended to each engraving. This repetition is not only useless in itself, but embarrassing to the reader, who as he turns the page, is continually discovering that he has "heard this learning before." On the other hand, information that ought to be given is omitted. The architectural reader of course can readily distinguish between the original portion of the Egyptian obelisk and the Roman terminal added to it, or (as in the case of the Lateran obelisk) the Roman surbase and plinth upon which it stands; and in the case of three of the obelisks the addition of the cross on the top is sufficient to show any reader that the monument is not in its original form. But in the case of the Monte Citorio obelisk, for instance, where there is no cross, there is not a hint for the uninstructed reader, taking up the subject for the first time, as to what is original and what is not. The ridiculous elephant base upon which the obelisk of Pharaoh-Hophra was placed by Bernini in the Piazza della Minerva (which gained Bernini the nickname of "the elephant"), is too prominent a peculiarity to be passed over; but otherwise the reader is left to find out what he can for himself as to the architectural substructure of the obelisks. The concise statement of the history of these remarkable monuments is well put into a short space, and the author draws attention by a pointed sentence occasionally to the remarkable nature of the historic vicissitudes which some of them have passed through. Of the Lateran obelisk he observes that "it was originally set up in Egypt by Thothmes III., the great oppressor of the Hebrews, B.C. 1655. It was brought to Rome by Constantine, about A.D. 311, and it now stands as a trophy before the earliest, and in some respects the chief, basilica or cathedral church in Christendom." A short but certainly suggestive record. What will be the next destination of this ancient monolith, which has looked upon such changes in human life and thought, and in architectural style and development too? Perhaps "'twere to consider too curiously, to consider so." Mr. Parker is fully alive to the significance of some of the inscriptions of the obelisks in regard to religious history, and repeats, at each mention of the obelisk of Domitian (Piazza Navona), the denunciatory epithet of "blasphemous" in regard to the titles of deification of the emperor inscribed thereon. After the lapse of so many centuries we should have thought such follies might be allowed to pass without any more hard words.

In regard to the supplement, which, as we observed, forms the bulk of the present volume, we may state its object in the author's own words,—"To explain more fully and clearly some points where this seems to be required, especially by means of plans and diagrams, because they are new to most people, being the results obtained by the great excavations and explorations that have been going on in Rome during the last few years, more especially the last two years. The great excavations made for the drains of the new city have brought to light many things quite unknown previously." Mr. Parker describes his own position in regard to these records and illustrations, carried out only by the combined efforts of many friends, as that of "general editor," a post for which he was qualified "by long experience in the architectural branch of the subject, and the habit of closely observing the construction and details of a building as a guide to the date of it." Without questioning Mr. Parker's capability, in this respect, to edit the labours of his friends, we cannot but think his publication would have derived increased value from the presence of a further co-operator to edit the work of the editor. There is a mass of information and a large amount of theory and suggestion presented to us, but all poured forth in such an unmethodical manner, and written in a style so deficient in point and perspicacity, that it is a kind of thirteenth labour of Hercules to find out, in most places, what the author is really driving at, or what is the relation between one fact and another and between the isolated facts and the general theories in support of which they are adduced. Considering that the information intended to be given is very full and very interesting in itself, it is difficult to imagine a volume more perplexing and bewildering to the reader. Mr. Parker may say, and perhaps with some truth, that those who are well acquainted with the sites alluded to will have no difficulty in understanding all he wishes to convey; but the very object of such a publication is to afford information and convey lucid ideas to those who are without such detailed knowledge; and the information amassed by even so untiring an archæological student as Mr. Parker loses a great deal of its value if the archæologist does not possess, or has not taken the trouble to acquire, the power of systematically grouping his facts, and stating them in a clear and lucid manner.

The supplement, which may be divided into two portions, the first consisting of continuous text, the second of illustrations, with comments descriptive or otherwise in connexion with them, is chiefly directed to the further elucidation of the author's theory in regard to the lines of the walls of the city at various periods, and the recent discoveries that bear upon or support it. These, however, not only refer back to the former volumes, but forward to volumes yet unpublished, and the date of the appearance of which is "uncertain." It would be scarcely possible, therefore, fully and fairly to examine at present the position taken by Mr. Parker in regard to this part of Roman archæology, in which he admits that he is in opposition to a good many other archæologists. Among the points of interest of which drawings are given, is the great foss of *Roma Quadrata*,—the ditch, in fact, of what Mr. Parker regards as the first wall of Rome. This, he says,—

"Is of so much importance for the early history of the city of Rome, and is in general so little understood that some further account of it is called for. It is so much concealed also by having been filled up for such a length of time, that considerable study is required to understand it, and realise the fact that it was an enormous foss, which remained open and had various buildings erected in it, on the bottom of it, during the time of the later kings and the Republic. It was not filled up to the level of the rest of the surface of the hill until late in the first century of the empire, under Domitian. At that time the plan of the great public buildings called the Palaces of the Cæsars required a large level platform, and this great foss was filled up to the level of the earth on each side of it, not with earth, but by building walls across it at intervals of 15 ft., and throwing vaults from one wall to the other. This was done to make the whole surface one large level space, of greater extent than was practicable in any other manner.

In consequence of the great excavations made for Napoleon III., and more recently for the Italian Government, by Signor Rosa, these cross walls can now be distinctly seen in several places. One of the most obvious of them is near the west end of the foss towards the Circus Maximus, and close to the cliff on the south side of the foss, on the top of the bank of which stands the Villa Mills. In this part a deep pit is left open, in which can be seen the walls of some great building, of the large squared stones in the style of the later kings or early in the Republic, respecting which nothing has been ascertained. On the east side of this pit, on the present level of the ground, stand the bases and parts of the columns of a portico of the time of Domitian, apparently a small temple, just outside the tribune of the great hall or triclinium. About a hundred yards further to the east a modern flight of steps descends into a series of three chambers, now subterranean, called the "Bath-chambers of Livia," probably because there is a fine picture of her time on the vault of one of the chambers. . . . . These chambers have been cut through in the most reckless manner by some of the transverse walls before mentioned. Still further to the east, and getting towards the Arch of Titus, these walls may be seen again passing under the *Basilica Jovis* or state hall of the empire, which is also of the time of Domitian."

This description, borne out and explained by the section given through the foss and the buildings in it and over it, affords a remarkable instance of that blending of the remains of various epochs in almost inextricable confusion, which has rendered Rome such a practically inexhaustible field for the interest and ingenuity (some perhaps would add the imagination) of the archæologist, and is an example of the nature of the information and archæological illustration given in the supplement. The references to this very plate, however, give an instance of the confusion in the arrangement of the book. The editor can do nothing like other editors, so he calls the first of the series of plates illustrating the supplement the "frontispiece," though it does not occupy the position indicated by the word frontispiece, and then adds "or Plate I."; but refers in the text to the next illustration as "Plate I.," though it is numbered "II." The said "frontispiece" is a photograph of the primitive fortifications of Gabii, with a modern village which stood, up to 1870, within the old walls, and which, if taken as a remnant of the aboriginal style of dwellings in the country, does illustrate, as is remarked in the notes, why it was so easy in early times to transfer all the inhabitants of a conquered city to Rome; "the Italians in those days lived in similar huts; they were shepherds and herdsmen, their wealth consisted in flocks and herds; if they could have pasture found for them, and a safe place for their huts, the removal from one place to another was little hardship to them, and the increasing power of the Romans gave them better protection against neighbouring tribes." The fortifications referred to, and of which the photograph gives a view, stand on the edge of a high cliff, which was formerly the bank of a lake. "This lake," says Mr. Parker with charming *naïveté*, "*has unfortunately been drained* under the direction of Canina, the Roman architect and engineer." The lake was no doubt drained for sanitary reasons, as there are still a few people living among and about the ruins of Rome; but to an archæologist of course that is nothing; and as picture-cleaners think pictures are only painted to be "restored," Mr. Parker regards Rome as only existing for the archæologist.

The general chapters on the walls, and on some special buildings recently excavated, of which we have not space to give an abstract, are followed by a chapter on "brick-stamps," and their use as indications of the date of the work in which the bricks are used. Of the illustrative plates following, one of the best and most interesting is No. 10, showing the excavations on the site of the Porta Capena (Juvenal's "madidamque Capenam"), in which the extraordinary mingling of the road and wall of one Roman epoch with aqueducts of a later epoch and domestic buildings of Mediæval date, all tumbled together and intermixed in the sublime confusion of new and old which distinguishes Rome from all other ancient cities, is remarkably shown. Another extremely interesting building, or rather apartment, excavated in 1874–5, is shown in plates xiii., xiv., and is the only apartment in preservation among the remains of what is called and believed to be the "house of Mæcenas."

"The house of Mæcenas is recorded to have been on the Esquiline, and on high ground, as it was from the tower of this house that Nero witnessed the great fire. The exact site has hitherto been unknown, and has been supposed to be on the site of the church of St. Pietro in Vincoli, which is also on the Esquiline, from whence there is a fine view over a great part of Rome. But in the great excavations made by the municipality of Rome in 1874 for the new city, in removing part of the great *agger* of Servius Tullius, near its southern end, and its junction with the cliff of the Esquiline Hill (which is only a great promon-

* The Archæology of Rome. By John Henry Parker, C.B., &c. Chapter or Part IV.,—the Egyptian Obelisks: to which is added a Supplement to the First Three Parts, which form the First Volume. Oxford, James Parker & Co.; London, John Murray. 1876.

tory from the high table-land on which the *agger* was erected), remains of this celebrated house were found, at a short distance to the south of the church of S. Maria Maggiore, on the eastern side of Via Merulana, the street that leads from that church to the Lateran. The house has evidently been of considerable extent, part of it within the city and part without, as the great *agger* on which it was built was here the boundary of the city; or perhaps, strictly speaking, the great foss outside of it was the municipal boundary in this part, and a street was made on each side of the *agger*, the two fosses being paved, and the houses built on the sloping banks, and in part dug out of them. So that this great house must have had one door in the inner street and the other in the outer one.

The only part at all perfect has been called the *auditorium*, or lecture-room, being like a small theatre. This is a very remarkable building; it seems to have been lighted from above, and has sham-windows in the walls of the apse or round end of the hall, which are beautifully painted on the plaster, with views of a garden as if seen through them, probably intended to represent the garden of Mæcenas himself, as he wished it to be before it was actually made."

How this could have been considered an auditorium or lecture-room it is difficult to understand; the plan is like that of a rather short basilica, an oblong apartment with a semicircular apse at one end, with stages running round it. If these stages were regarded as seats for an audience, what need of the extension of the oblong apartment in front of them? The opinion subsequently put forward by Herr Mohr, that the apartment was a conservatory, and the stages for flowers, seems much more probable, and, Mr. Parker infers, is now the generally accepted one. A string-course divides the wall about half the height between the plinth-line and the cornice-line; below this occur the recesses in the form of windows, alluded to in the quotation, painted with floral ornament on the soffit and jambs, and at the back painted realistically, in scenic fashion, with part of a garden, with balustrade, fountain, and trees, seen in perspective, and evidently intended as an illusion. One bay, below the string, is given on a larger scale in plate 14. The plinth is painted with small figures and other subjects, light on a dark ground. Mr. Parker tells us nothing about the colours, or whether they are still distinguishable. The representation of the trees and shrubs in these window-pictures seems, as far as one can judge from the engraving, very free and natural; and it seems probable enough that such a mode of decoration, extending in appearance the domain of the flowers beyond the walls of their apartment, would have been thought a suitable style of decoration for what we should now call a conservatory. The apartment is barrel-vaulted, with ceiling lights, and, to judge from the plan and section, must be a very elegant and pleasing interior.

Almost the whole of the information in regard to this relic of the house of Mæcenas is of course repeated twice over, in almost the same words, in the general chapter, and in the long comments prefixed to the plates, according to what seems to be Mr. Parker's notion of the way to make up a book. It would surely have been a more simple matter to have inserted the plate at the point where the illustration is required in the general chapter. Among other highly interesting illustrations are those on plate xvi. of the piers and masonry on each side of the Via Triumphalis, and a portion of a foot-bridge near the bridge of Caligula, with a piece of delicate trellis parapet, the appearance of which suggests woodwork rather than the actual material, marble. Plate xxiii. lets us a little into the building operations of the first century, in a carving from a tomb, where stones are shown being raised to the roof of a temple in progress by a patent crane with a hoisting action worked by a tread-wheel on which three or four men are operating.

Part II. of the chronological table, in which the dates of buildings are given in one column, and those of contemporary events in the other, is continued from 337 A.D. to 1691; this is a most useful table, and assists the archæological student materially to bear in mind the relation between architecture and history. This table is indeed the most methodical thing by far in the volume, which in the main is about as curious an example of the collection of numerous interesting facts from original research, without the slightest perception of the value of condensation and arrangement, as could well be imagined. We hope Mr. Parker will long have health and strength to continue his valuable and interesting researches in Roman archæology, and that when he has completed all that it is allotted to him to do, a competent editor will be found to condense and arrange into readable form the chaos of facts which will have been amassed by his energy and perseverance.

DWELLINGS OF THE SWISS WORKPEOPLE.

THERE are but few countries where the dwellings of the working classes are better built and planned, and where they offer greater advantages in a sanitary point of view, than in Switzerland. In the architecture of the Swiss châlet, for instance, there is, socially and artistically speaking, much that is attractive. These wooden houses are more frequently to be met with in the German cantons than in the French and Italian, where they are rapidly disappearing, being replaced by more economical, if less picturesque, constructions of stone or brick.

Although there is great variety in the plans of châlets, they, in one respect at least, bear an affinity to the older style of German peasants' houses, namely in the arrangement of the family-room. As a rule this room holds such a position in the southern corner of the house that the sun shines through it diagonally. It is nearly square, and the wall on both sides of the southern corner is pierced by numerous contiguous windows, which throw light upon the large working and eating table placed in this corner. This is the gathering-place of the family, where the light and warmth of the sun may be enjoyed from morning to evening. Benches are fixed to both of the sunny walls, under the windows, which have small compartments, which can readily be opened by the hand of any one sitting on the benches. These windows generally command a beautiful view; whilst a mere turn of the head enables the person enjoying it from the benches to keep a watchful eye upon the proceedings of the other inmates of the room. The windows are mostly latticed, and a projecting roof shelters the interior of the room from the mid-day rays of the summer sun. By this arrangement of the windows the symmetry of the frontage is sacrificed, a matter which, however, appears of little consequence where the great object is to obtain a clear and full view of what is passing in the neighbourhood. The lowness of the rooms, the panelling of the walls and ceiling, and the stout boards of the floor combine to retain in winter the heat radiating from the large tiled stove which fills the corner opposite the windows. Close to it are high steps, which serve for seats in cold weather, and which lead through a trap-door to an upper room, which derives its warmth from the same stove. In the third corner stands the immense dresser or sideboard, provided with open and locked compartments, and a flap which serves as a wash-table. A clock, with hanging weights and some neatly-carved wooden chains, complete the furniture of the family-room, which only differs in the poorer and richer dwellings in the lesser or greater amount of carving which adorns the panels and furniture.

From the square shape of the family-chamber is evolved the grand plan of the whole building. Next to that room is the sleeping apartment, which fills the adjacent space in the frontage, and stretches back the same distance. Behind both these apartments, and completing the ground-floor is the kitchen. The kitchen-range is situated behind the stove, which is the only one in the house. Either one chimney is made to serve for both fires, or the kitchen-smoke is left to find its way out of holes in the roof, to which the walls of a portion of the kitchen extend in height. On the south-west and north-east sides of the house are steps leading up to two opposite entrances to the kitchen, which are protected by the projecting roof. The spaces under the landings of these staircases are sometimes enclosed and utilised as pig-styes, &c. Flights of stairs lead from the kitchen downwards to the cellars and upwards to the two front rooms under the gables, and to the covered-in balconies on the sides. The front of the house is by far the most important portion, and for it are reserved the chief efforts of the wood-carver. The back wall is generally left perfectly unornamented.

Some of the châlets have only a ground-floor, divided in the manner described into a family-room, sleeping-room, and kitchen. In rare instances there are also more than two floors; but the general plan is that which we have endeavoured to explain. Occasionally châlets are to be met with constructed on a totally different system, as, for instance, with the kitchen in the centre of the house, lighted from above; or, as in the Bernese Oberland, where two families live in one house, which is often the case, the châlet is divided down the middle, the partition-wall subtending the point of meeting of the sloping sides of the roof. It is in such double châlets that the finest specimens of huge gabled fronts twice the length of the sides are to be met with, richly and fantastically decorated. The barns and stabling are sometimes attached to the house where the resident is of the better class, and sometimes separate. In the interior of Switzerland, and in the mountain districts, the former is usually the case.

With respect to the outer walls of the Swiss châlets, they belong to three styles. The first belongs to the so-called blockhouse châlet, which is generally raised considerably above the ground on stone foundations. The walls projecting one beyond the other, are constructed of stout planks of fir or larch, fastened together by means of wooden pins.

The second is the frame-house style, in which the walls are built of strong oaken posts, grooved to receive planking which is secured by cross-pieces and bolts.

The third style, which is called the panelled or trellis-work mode of building, was introduced into north-east Switzerland about the beginning of the last century in consequence of the increased price of wood. It is related to the frame-work house above described. It is built on high stone foundations, from which a series of light beams, interlaced so as to form a species of trellis-work, rise upwards vertically and diagonally, to support a projecting roof of varying character; the spaces between the beams are filled up with rubble and plaster.

Employers, being themselves directly interested in finding lodgings for their operatives, have, in many instances, constructed dwellings for them close to their factories. In the western districts there are, indeed, but few such lodging-houses; but they are frequently met with as one approaches the north-east from the west towards the Lake of Constance. A number are found in Soleure, Argovie, Zurich, Schaffhausen, and Thurgovie. The thirty-six houses built by M. Wyss, of Zurich, for the families employed by his firm, may be cited as a fair sample of the kind of buildings constructed for operatives by their employers. These houses, which have a small garden attached to them, consist of a ground floor and upper floor of two or three rooms, a kitchen, cellar, and loft. The rent varies from 13s. 4d. to 18s. 4d. a month. They are always occupied. Many such lodging-houses have been built by philanthropic societies, and even by the joint efforts of workmen themselves. At Neuchâtel a society has erected a considerable number of lodging-houses, and proposes to build others for the working classes. The apartments are grouped in fours, with a common entrance, two apartments being on the ground floor, and two on the first floor. Each lodger has his own garden, and the rent paid is very moderate. But the town of Locle in the Jura, one of the principal districts where clock and watch-making is carried on, offers, perhaps, the most remarkable instance of the scale on which such buildings are constructed in Switzerland. Each block of houses built by the "Association Immobilière" consists of five divisions. These are again subdivided into buildings detached from each other, and surrounded by little gardens. There are from 300 to 400 such holdings, their rent ranging from 6*l.* to 16*l.* per annum. They leave little to be desired as regards position, distribution of rooms, and ventilation.

There is no establishment in Switzerland where workmen can obtain cheap clothing, at least at all commensurate with the small price of other necessaries. But in nearly every town and village are to be found public fountains and washing apparatus, protected by roofing, where linen can be washed with ease, and at little or no cost. A vast number of boats are, moreover, moored in the various lakes, rivers, and canals for this purpose; and both the Cantonal authorities and private individuals readily allow of the free use of those countless limpid streams which flow through the country. Public enterprise has also introduced machinery for bleaching, drying, and ironing linen by steam, the charges being on an average 1½d. for washing, 1d. for ironing, and ¼d. for drying, per hour. This system has an excellent effect in one sense, namely, that of keeping the domiciles of the lower classes, where it is in force, entirely free from the damp and consequent unhealthiness produced by washing.

The average rate of wages of men, women, and children, taken altogether, is estimated at between 1s. and 1s. 3d. per working day of thirteen hours; taking the men only, the estimate is between 1s. 5d. and 1s. 7d. In the

Canton of Berne, which represents one-fifth of the whole country, masons, stone-cutters, and joiners earn about 2s. a day, and carpenters 2s. 2d. There are no general statistics on the subject, but these figures are allowed to be near the mark.

The food of the working classes consists principally of bread of very fair quality, of cheese, potatoes, vegetables, and fruit. They seldom eat meat above twice a week, and even then in very small quantities. All classes alike live very frugally, and confine themselves principally to a vegetable diet,—the fare of the middle classes being frequently very much the same as the lower. Breakfast generally consists of coffee with milk, but without sugar, and a large piece of bread. Those who are highly paid add cheese, butter, and fried potatoes. The whole population, from the highest to the lowest, dine between eleven a.m. and one p.m. Then the working classes take soup, potatoes, vegetables, and bread, and a bowl of coffee. The last meal is in all respects the same as the first. Wine is drunk in French Switzerland, and beer and cider in the German-speaking cantons. In Berne board for a man is from 5s. 7d. to 6s. per week, without wine or beer. Lodgings for single men cost 1s. 2d. to 4s. 9d. per week, according to the accommodation. Families pay from 2s. 3½d. up to 6s. 2d. per week. For the former sum they have but one room and the use of a kitchen in common with other lodgers.

As a rule the Swiss workmen are competent in their several trades, and take an interest in their work; for, thanks to their superior education, they fully appreciate the pecuniary advantages to their masters, and indirectly to themselves, by adhering strictly to this course. Their wages are very small, but relatively larger than in other countries, if judged by the standard of their wants. The thriftiness of their habits, the smallness of their wants, and the variety of the resources at their disposal, enable them in the majority of cases to save money whilst living in comparative ease.

THREATENED DESTRUCTION OF CHURCHES.

ACCORDING to a report passed at a meeting of the Fellows of Sion College, the commissioners acting under the Union of Benefices Act, are to be recommended to leave as many as twenty of the City churches; fifteen it was thought would be enough, but out of consideration for historical associations, architectural merit, the configuration of the City, and ecclesiastical traditions, they will go as far as twenty! Not long ago there were eighty churches within the City walls; there are now, we believe, fifty-one standing, so that thirty-one more of these monuments are to come down. Those who are interested in such matters should at once consider what steps could wisely be taken to prevent such wholesale destruction. A Protection Committee should be appointed.

THE INSTITUTE.

AT the special meeting on Monday last, to discuss the recommendations of the committee in regard to proposed alterations of the constitution of the Institute, we may just say, though (as we before observed) we do not feel at liberty to report the proceedings, that there was a large attendance, and that the discussions were carried on, considering the amount of strong feeling existing in regard to some of the subjects, in a very moderate and temperate tone, and that, while the majority of the meeting appeared to be like ourselves, opposed to much of the proposed change, there seemed every disposition to take full time,—even two or three more meetings, if necessary,—to discuss both sides of the question fully, and to come to no hurried decision. We hope, whatever the ultimate conclusion arrived at, that good will result from the thorough consideration of some of the subjects brought forward. The meeting was adjourned before attempting the passing of any resolution, there being no prospect of closing the discussion at a reasonable hour with fairness to all who had a claim to be heard.

We may just add that, while we are desirous studiously to respect the privacy of the proceedings as long as they are officially declared to be private, and abstain from anything like reporting, we cannot help thinking that entire publicity would be a much better policy, and would lead to a much fuller and more satisfactory discussion of the proposals under consideration than can be possible as long as a formal privacy is maintained, which, after all, is, in regard to any one who really chooses to get information, little more than a fiction.*

PUBLIC STANDARDS OF MEASURES AND WEIGHTS.

THE Standards Commission, some little time ago, recommended the construction and laying down of public standards of length, and a site in New Palace-yard was proposed for the object, but was abandoned in consequence of objections raised by the Office of Works. It was next proposed to lay down these public standards on the terrace of the Thames Embankment, immediately above the landing-place at Westminster Bridge; and after some communications between the Board of Trade and the Metropolitan Board of Works, a grant of 200*l.* for the necessary expenses of laying down the public standards on this site was sanctioned by the Treasury, and included in the Parliamentary grant for 1875–6. We now learn from the Annual Report of the Warden of the Standards, just issued, that in consequence of the restrictions imposed by the engineer of the Metropolitan Board, it has been found impracticable to carry out this arrangement; but that, thanks to the intervention of the Astronomer Royal, it has been settled that these public standards of length, consisting of the chain of 66 ft. and the chain of 100 ft., shall be fixed on the north side of Trafalgar-square, the mural standards being also placed at the same site.

We also learn from this Report that amongst such of the ancient standards of weights and measures that have been discovered and authenticated as genuine standards, the most complete set of weights are those of Babylon and Assyria, found by Mr. Layard in the ruins of Nineveh, and now deposited in the British Museum. There are two distinct series of weights, one of bronze, in the form of a crouching lion on a pedestal; the other of stone or hardened clay, in the form of a duck, with the head turned flat on its back. Some doubt, however, existed as to their true weight, and as a matter of general interest the Warden of the Standards thought it desirable that their weight should be authoritatively determined, by accurately comparing them with our own standard weights. This has been done by an officer of the Standards Department, by permission of Dr. Birch, in whose immediate charge these curious relics of antiquity are placed. A very full and interesting description of them is printed in an Appendix to this Report, together with some remarks upon the standard units of these countries, and of other countries, supposed to have been derived from Babylon and Assyria. Reference is also made to the earliest ancient coins of these countries, and the relation which their weight bears to the shekel, the lesser unit of weight.

In addition to a handsome Sèvres vase, inscribed with the name of the delegate from each country, which was presented to every member of the International Metric Commission in 1873, the French Government has recently presented to each member of the same Commission a bronze medal, in commemoration of the work entrusted to them of constructing new primary standards of the metric system. On the obverse of this medal, which has been struck at the Paris Mint, is an allegorical group of four female figures, representing the four quarters of the civilised globe, Europe being in the attitude of presenting the standard mètre, and having a balance and kilogram beside her. Above and below are the following inscriptions:—"Populorum. Concordiæ. Sacrum. Paris, 1872." On the reverse is an address in Latin to the members of the Commission, which may be thus rendered:—"To each and all of the men of science, delegates for constructing a standard mètre, in commemoration of the skilful and successful accomplishment of the work, given publicly by grateful France, 1874."

The Building Trade in the Potteries.—The builders of the Staffordshire Potteries and Newcastle have received notice from the carpenters and joiners for an advance in the rate of wages, a reduction in the hours of labour, and increased advantages with regard to overtime.

* We have received from several hands copies of various amendments intended to be brought forward at the next meeting: but they reached us too late for consideration.

THE LATE MR. S. T. DAVENPORT.

WITH very great regret we have to announce the death of Mr. S. T. Davenport, well known as an active and energetic officer of the Society of Arts. Mr. Davenport's connexion with the Society had lasted for thirty-three years, and it was in great part to his unceasing and zealous efforts that the present prosperity of the Institution is due. To very many of the members he was well known, and all who take an active interest in the Society of Arts will feel his loss severely. Mr. Davenport's death was very sudden. It took place on Friday, January 7th, after an illness of only four days.

MR. ALBERT BRIDGMAN, ARCHITECT.

WE have to record the death, on the 30th ult., of Mr. Albert Bridgman, architect, of 42, Poultry, E.C., at the early age of thirty-five. He had already executed a number of works, amongst which may be named the club at the south-east corner of Ludgate-circus, the Imperial Arcade annexed to it, and extensive buildings in Ludgate-hill; a range of warehouses in St. Bride-street, in the same neighbourhood; a block of buildings at the north-west corner of Queen Victoria-street and Queen-street; the second block of buildings from the Mansion House, on the north side of Queen Victoria-street, City; a range of shops and offices in Railway-place, Fenchurch-street; warehouses and offices in Chancery-lane, near the New Law Courts; the rebuilding of "Canterbury Palace," Westminster Bridge-road, with considerable additions of aquarium and skating-rink, some of which latter works are still in progress, and which will be completed under the direction of Mr. H. H. Bridgman, his brother. Mr. A. Bridgman, who was an Associate of the Institute, was awarded the second premium in open competition for the Paddington Baths and Washhouses, and it is stated that in 1873 he was the first to conceive and advocate the idea of an aquarium for the metropolis, and for that purpose prepared a design for a group of buildings on the Embankment, near Waterloo Bridge, and submitted the same to the Metropolitan Board of Works, which also comprised an art club, museum, and library; but in consequence of some difficulty in procuring the site his scheme was delayed, and the Royal Aquarium grew into being, to his great disappointment.

Like Mr. Tarring, whose death we announced recently, Mr. Bridgman died at Torquay.

THE STORAGE OF WATER.

AT more than one place in England there fell during the late rains 2¼ in. depth of water in twenty-four hours. A single mile is not a very great space of ground, and yet there fell upon each square mile in twenty-four hours at these places 36 million gallons of water; and, allowing that even a large quantity may have been absorbed into the ground and evaporated into the atmosphere, there would still have been a very large amount which might have been collected on the surface which would have been, after filtration through sand and gravel, much superior in quality to ordinary well-water. We place this one day's rainfall on one square mile of ground (which was as much—if it could all have been stored—as 4,000 people require during a whole year) in contrast with the great damage recently done by floods in the low-lying grounds, and as a prelude to some further remarks upon the general case. The case is one in which two parties may be benefited by one and the same operation.

By making reservoirs to store the flood waters, the population of towns and villages might be from them supplied with water for all purposes, and at the same time, and by the same work, the lands now subject to floods might be proportionately relieved; and, of course, the owners and occupiers of such lands should pay their share of the cost of the work. The tenant's payment would merge in that of the owner, and would take the form of an increase in the rent, which would be the way by which the owner would recoup himself for payment of the tenant's share of benefit along with his own. In what proportion the share should be subdivided between owner and occupier can be ascertained by proper valuations. There are several forms of loss by floods; there is the loss of profitable occupation of land during the continuance of the

flood, and injury to the herbage already upon the ground; then, where houses are flooded, there is the loss or depreciation of value of furniture, and security against these is the benefit for which the tenant must pay. On the part of the owner, where buildings are flooded, there is structural injury to them, not only in breakages, but, what is perhaps more permanently injurious, the site is rendered damp for a long time afterwards, giving rise to rheumatism and other ailments of the inhabitants, and, although they are the first sufferers in this respect, the owner suffers a loss consequent on a real and permanent depreciation of the property-value. The owners and occupiers of land at present subject to floods would then be one chief party to the expenses of construction of remedial works; the other chief party would be the populations to be supplied with water from the storage reservoirs, whose representatives are the several sanitary authorities of the country. To these, under present arrangements, Government lends money for the construction of such works as storage reservoirs, at the low rate of interest of 3½ per cent., the principal sum being repayable in a stated number of years; the sanction to the loan, however, depending upon the issue of a local inquiry into the merits of the proposal, at which all parties interested may be heard.

The reservoirs to be made in the interests of the populations would mostly be at high levels, and would deal with the flow of water from the upper portions only of the water-shed areas, but in so far as they impound the flood waters of those areas they are, *pro tanto*, of full efficiency in the interests of the other party, who might very reasonably be called upon by the Government to pay a portion of the 3½ per cent. otherwise payable solely by the sanitary authorities, based upon the number of acres of each separate owner which lie below certain given levels which have reference to the levels of the rivers in their normal condition, the amount of such payment being based upon and being proportional to the outlay of the sanitary authorities under the sanction above mentioned. The portion contributed by the owners of these lands would be upon the cost of the reservoirs only (which would be easily ascertainable) and not upon the conduits or town piping in any case.

There are other persons who would be benefited, but who would not be asked to contribute anything more than their good will, viz., the millers and other users of water-power on the streams. The water-wheels, with the small mill-dams for storing the night water, are mostly constructed so that they can use nearly one third of the whole quantity of water which comes down the stream in a year of average weather; but in dry weather the quantity they can use is often not more than one eighth of the average flow, excepting on some chalk streams.

The proportion of the minimum to the average flow varies with the character of the ground within the watershed area, for where it is of an absorbent nature the wheels are proportionately of greater capacity, for the flow is more regular, the water issuing in copious springs even in dry weather, having been stored in the ground from previous heavy rains, whereas upon clay or other non-absorbent ground the flow is very irregular, and the reason of the water-wheels being constructed in such manner as to use about one third of the average quantity would seem to be that it is in the long run a loss instead of a gain to make a wheel so large and therefore heavy as to be capable of using a much larger proportion of the water, which would seldom come down the stream, whereas at all other times too much of the smaller proportion of water would be expended in moving the useless weight and inertia of the larger wheel, instead of being applied through a lighter wheel with useful effect.

In times of flood, the wheels are at a disadvantage, because the available fall is reduced, and the wheels run in backwater. It is, therefore, much to the advantage of mill-owners to receive regularly throughout the year one-third, or even less, of the whole annual quantity stored, than to be subject to droughts at one time and floods at another. It is probable that one-fourth would be an ample compensation, all things considered; but we shall assume one-third to be due to the streams, and two-thirds to the populations requiring a water supply, which we take at 25 gallons per head per day, or 4 cubic feet. If one-third of the whole be apportioned to the mills or streams, it would be 2 cubic feet per day per head of the population supplied, making the whole quantity required 6 cubic feet per head per day, or 2,190 cubic feet per head per annum. How, then, to procure this quantity?

In the case of reservoirs for the supply of towns (without any reference to the question of floods in low-lying lands), the quantity of water falling during three successive dry years is regarded, and the third part of that quantity is set down as the average of three consecutive dry years, which is all that is attempted to be dealt with in calculating the requisite size of the reservoir, and it allows about one-sixth of the whole quantity to pass over the waste weirs of the reservoirs. For town purposes, it is thought not worth while to make the reservoirs so much larger as they would have to be to store this sixth part, coming, as it always does, when the reservoirs are full; but if storage reservoirs are to be made with the object of preventing the lower lands being flooded, as well as of supplying towns with water, the capacity should be calculated so as to store also this other sixth part of the quantity.

In the earlier days of town water-supplies the average rainfall was relied upon as available after deducting a certain fixed quantity, or a certain proportion (one or the other, according to the practice of different engineers) for loss by absorption and evaporation, but the supplies calculated on that basis failed during long droughts, because the reservoirs were not of sufficient capacity. Further experience, or, rather, further trouble in examining extended tables of rainfall, combined with the knowledge of failures which had occurred, proved that a portion of this average (*i.e.* about one-sixth part) could not be stored unless the reservoirs were made larger than economy dictated, and so engineers became content to deal with five-sixths only of the average annual quantity, confessing that the capacities of the several reservoirs constructed for town supplies would not be sufficient to store the other sixth part, which must therefore, pass the reservoirs; and if, upon a complete examination of the facts bearing upon the question, it should appear to be true (as has been said) that it would be impossible to store this other portion in reservoirs of any practicable dimensions, then that portion must go as heretofore to flood the lands; but it ought to be remembered that this saying had reference to the economical outlay of money by waterworks companies and by corporations who make their own waterworks, and who, of course, have no interest other than their own, or that of the people whom they represent,—have, in short, no interest in preventing floods in the lower lands; and in this light it may well have appeared to be impracticable. But this is a question which must be dealt with on grounds of general interest rather than on those of persons, and deserves the attention of the Legislature, with the view of bringing into harmony the requirements of the several parties interested. There is a precedent in the South Staffordshire Mines Drainage Commission, although that case is not quite analogous to this one. There the water running over the surface of one property sinks into the ground and floods the mines of another, which thus become unduly charged with water, and so far there is some analogy between the two cases; but the Mines Drainage Act was passed to regulate conflicting interests of a strictly personal character, whereas this other question must be dealt with on another and a wider basis, and one which shall be more national. No greater calamity could happen to the country than that this question of a water supply to towns and villages, combined with the relief of low-lying lands from floods, should be dealt with on the principles which govern trading concerns. Let us have economy of construction, and do not let us bury good money by wasting good materials, but never let one section of society sell water to another.

It may be said that such reservoirs as would be made for the supply of water to towns and villages would mostly be placed in the higher parts of river courses, and would cut off but a comparatively small part of the whole watershed area of a great river, and that is so, no doubt; and whatever we do in the upper sections of rivers, a very large drainage area will remain below any reservoirs that could be made. This is one of the many points to be considered. But whether reservoirs be or be not made with any regard to land-flooding, the river-courses claim attention. For a long time the solid refuse matter of towns and villages on the banks of rivers has been ruthlessly thrown into them. Where is the hydraulician who will say that English rivers, taking them in general, have a transporting power sufficient to carry out to sea house ashes, brick-rubbish, and the waste products of manufactures? Those who put these things into rivers are deceived by false appearances. They see the flood carry out of their sight the ashes and other refuse they have put upon its banks, but they do not see that the bed of the river in their own neighbourhood is gradually rising, being silted up with the refuse of the people who reside upon the banks of the river higher up, nor will they believe that their own refuse raises the bed of the river lower down; but it does so, nevertheless. If we would discontinue the practice the power of the stream would, in course of time, carry the accumulations out to sea, and the river bed would return to its normal condition; but so long as the practice is continued, no better, but a worse, state of things than we have now may be expected.

THE PROPOSED PARIS OPERA HOUSE FOR THE PEOPLE.

THE *Revue Nouvelle de l'Architecture* gives a full description of the proposed scheme for a great opera-house for "the people" in Paris, and our readers may be glad to hear something about it. We confine ourselves to a statement of the object aimed at, and the general features of the proposed scheme.

For fifteen years past the idea has been entertained of constructing an immense theatre, at the junction of the Boulevard St. Martin and the Boulevard Magenta, and thus to complete the ornamentation of the Place du Château d'Eau, in Paris.

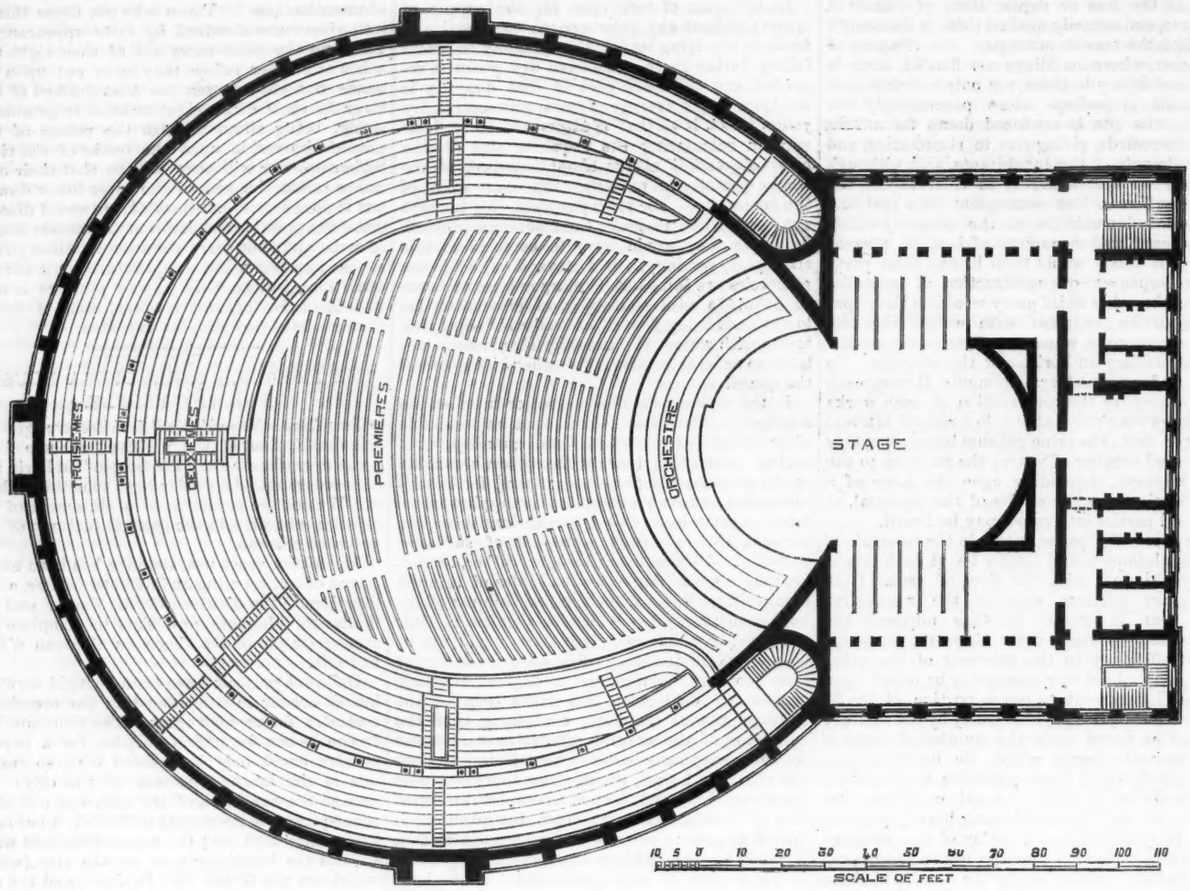
Different projects have been brought forward, but all concur in recommending the erection of a theatre for *popular opera*. The situation is a fortunate one for such a purpose, for a popular theatre could only be erected with success in one of the labour quarters of the city; and though the execution of the plan was put off in consequence of the events of 1870–1, it has never been abandoned, and the unoccupied land which adjoins the buildings now on the site (among which are the *Grand Café Parisien*, and the new circus recently illustrated in the *Builder*) has always remained vacant.

This project, which has slept for some time, has now been revived by a group of notabilities in the artistic, literary, and financial world, among whom we may remark the well-known names of MM. Emile de Girardin, Bardoux (Sous-Secrétaire de l'État au Ministère de la Justice); the Marquis de Saint-Georges; Halanzier and his lieutenant, Carvalho, the eminent comedian Regnier, Ambroise Thomas, Dennery, Sardou, Émile Angier, Jules Bartier, Félicien David, Camille Doucet, the Baron de Reinach, the *financier* Rostand, the tenors Roger and Duprez, Victorin Joncières, Saint-Saëns, Guy de Charnacé; Gall, editor of the *Liberté*; Raoul Duval and Count d'Osmory et Tirard, deputies; Charles Blanc, Alexandre Dumas, Léon de Maleville, Gounod,* Victor Massé, Massonet, Prince Troubetzkoï, Watel, Bischoffsheim, Auguste Maquet, Sapia, Erlanger, Segouvé, Faure, Bamberger, and lastly the promoters, M. Détroyat, who has convened all these personages, and M. Adolphe Sax, who has laid before them a project which he has for a long time studied for a theatre able to contain 16,000 persons, which he would erect in the Place Château d'Eau, at the angle indicated above, where it would be completely isolated by a street which will unite Rue de Bondy with Rue Château d'Eau, skirting one side of the Théâtre des Folies-Dramatiques.

The principle of M. Sax's project was warmly discussed, and finally a sub-committee was appointed to consider the scheme more fully, and the possibility of carrying it into execution; the sub-committee consisting of MM. Émile de Girardin, Bardoux, Ambroise Thomas, Halanzier, Carvalho, Joncières, Baron Reinach, Dennery, Détroyat, and Camille Doucet (as president of the committee of dramatic authors and composers).

The idea caused considerable excitement in artistic circles, and M. Davioud, the Inspector of Public Works in Paris, and architect of two theatres in the Place du Châtelet, recalled having given special thought to the subject ten years ago; his plans had even been drawn out and received a medal at the Vienna Exhibition. He reviewed his former conception, and secured the valuable co-operation of M. Jules Bourdais, who is an engineer distinguished also as an artist.

* It appears, however, from other sources of information, that the leading French composer has expressed his disapproval of the idea of a monster theatre.



PROPOSED OPERA HOUSE FOR THE PEOPLE, PARIS.——*Plan.*

These gentlemen materially modified the forms of the auditorium on new scientific data, preserving at the same time the monumental aspect of the building, and submitted their project, thus perfected, to the committee meeting under the presidency of M. de Girardin. M. Bourdais gave at some length a very lucid exposition of the principle and details of the plan, which appears to have impressed the committee with a strong opinion in its favour.

This scheme, then, of which we give sketch-plan and section, provides for the erection of a building capable of seating 9,000 spectators, divided thus :—

1,600 places de loges,
2,000 places de deuxièmes,
2,800 places de troisièmes.*

The plan of the auditorium is semicircular at the part opposite the stage.

The front portion of the plan is traced on a curve which is neither circle nor parabola, but is determined by points in such a way that, if divided into twenty equal parts, each part will serve as a reflector of sound to so many different parts of the *salle*.

This front portion of the house forms the frame of the proscenium, and presents an area of 500 square mètres, which forms an immense speaking-trumpet for the orchestra, the actors, and the chorus. At the back of the scene is a surface defined by the revolution of a curve of the same nature as that before described, and disposed in such a manner as to reflect forward all the sound that is ordinarily lost directly towards the house.

In addition to this, seventy-two vases for reinforcing sound (*vases renforçants*), tuned beforehand in accordance with the successive notes of a chromatic scale of six octaves, and rendered mute or resounding by a special mechanism, are placed near the orchestra, in order to augment to a great degree the sonority already developed by the other contrivances of the construction.

The conditions on which the placing of fauteuils and orchestra stalls is arranged in almost all modern buildings are very defective. In this building the floor is designed in such a way that each range of seats overlooks the one before it, not only by the height of the 10 centimètres between the eyes and the crown of a head of ordinary dimensions, but of 10 centimètres in addition, to allow for the more or less prominent coiffures of the ladies.* The line which satisfies these conditions is not a straight one, as one would suppose *à priori*, but a curve in which, at each equal and regular augmentation of the horizontal extent, there occurs an irregular augmentation of the vertical height. By this arrangement it is not necessary to look between the heads of the rank next below, the view of the whole width of the stage being clear.†

For a theatre containing 9,000 spectators, one may calculate that those in the last row of seats will in this case be placed at a level of about 20 mètres above that of the stage. It may readily be supposed, therefore, that one would not think of placing above this first range of the audience one or more of those rows of drawers (*tiroirs*) called *loges*, which throw the seats beneath them into obscurity, and occupy on each story height which would be much better utilised in successive additional ranges of sloping grades of seats. The effects of the stage *ensemble* will therefore be seen from all parts,‡ without any of those movements of the head which commonly transform a whole parterre into a kind of agitated sea of spectators who follow the movements of the actor not only with the eyes, but with the whole body.

Ventilation, when systematically attempted in theatres (which it seldom is), is provided for by a principle of exhaustion which leaves the whole interior in a state of low pressure (*un affet d'appel d'air qui met la salle entière en dépression*) and admits, at every opening of the box doors, a rush of cold air of which we know the disastrous effect. Is it not more logical, on the contrary, and not less easy, to place the internal air in a state of pressure, and thus give the draughts an inverse direction to that which they usually take?

In the plan under notice something beyond manual power is required for much of the working, even for mere economy of labour, and a steam engine of 10 or 15 horse-power will therefore form a necessary part of the scheme. This engine may easily be contrived to lend its force also to a ventilator, which, as the underground passages of the building communicate directly with the external air (*sont ventilés comme en plein air*), can easily be placed so as to draw in a continual supply of fresh air. This will be forced into the theatre behind the sound-reflector at the back of the stage, and will find its escape beneath the feet of the spectators. It is of course understood that the air will be warmed in winter, but in the summer it will be cooled, and means of easily regulating its temperature will be provided.

The theatre will be lighted not by one central lustre, but by a series, and just as the gas will be laid on in tubes on the ordinary principle, so a system of tubes will be provided, in like manner, to carry off the products of combustion, without their being permitted in any way to mingle with the main body of air in the interior.

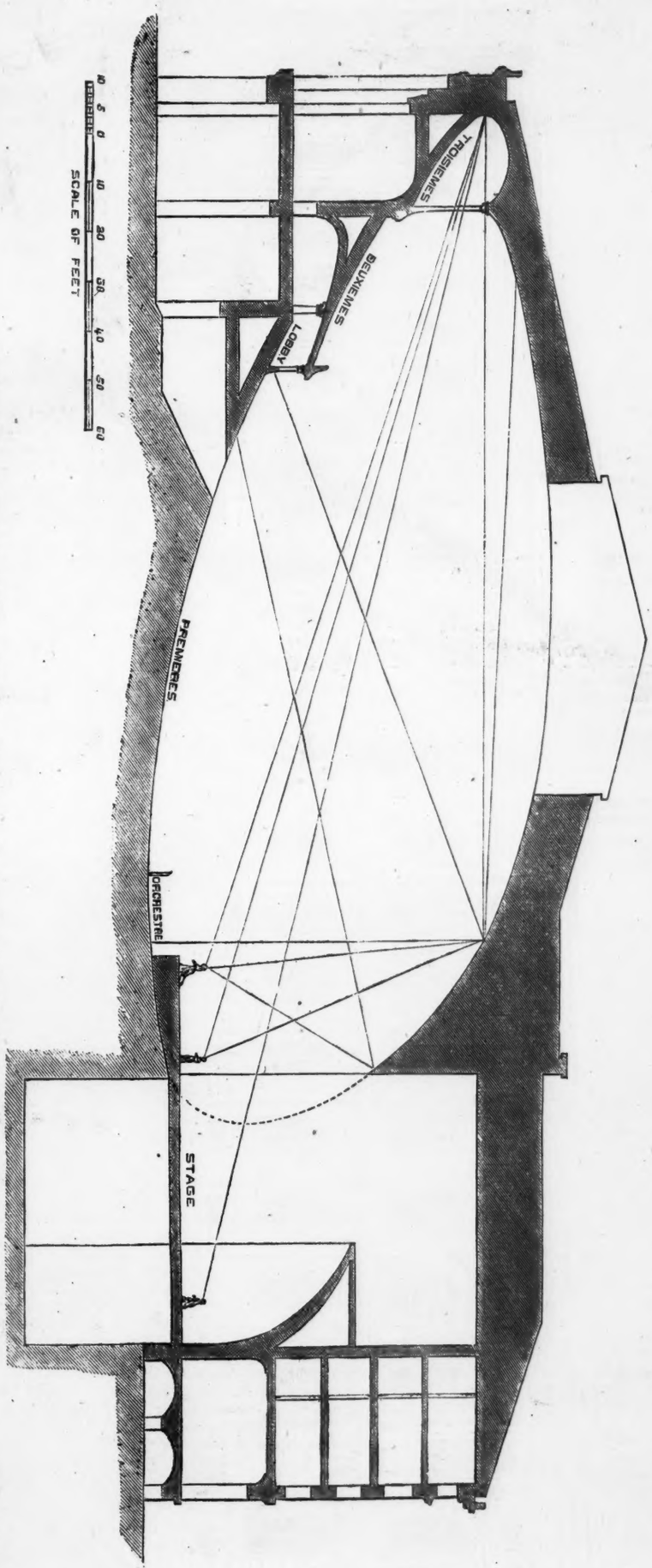
The centre of the ceiling will be occupied by a movable canopy, of a material rigid and light at the same time, and this will be arranged to open or fall back, and leave a large open skylight for daylight performances.

* Our contemporary's figures and plans are not got up with the accuracy desirable in such cases. There is evidently a mistake or an omission here, and probably we must supply the item, "2,600 places de premières," which will make up the total, and accord with the proportion of areas on the plan. The plan and section also are not everywhere in accordance, though the differences are not of any importance in regard to the general illustration of the scheme. We have, therefore, reproduced them.

* The height mentioned can only be intended to allow for the *less* prominent ones.

† It is scarcely necessary to remind our readers that this is no new idea, but merely the application of a system first worked out by Mr. Scott Russell a good many years ago, and styled by him the isacoustic curve. The principle has been adopted by two or three writers on the subject in works since published.

‡ The spectators in the two segments of the *troisièmes*, nearest the proscenium, will not, we should say, see much of the "*ensemble*."



PROPOSED POPULAR OPERA HOUSE, PARIS.—*Sketch-section through Stage and Auditorium.*

So far the practical statement of the scheme after which our contemporary comes to "*aperçus théoriques*," of which we waive the consideration for the present. We may add that two methods of architectural treatment are suggested; the one the erection of a completely new and independent building, internally and externally, the whole forming a complete architectural design on a grand scale; the other, which the *Revue Nouvelle* calls "mesquine et inacceptable," by which it is proposed to retain most of the buildings on the exterior line of the site, and enclose the theatre within them, thus making it a specimen of internal architecture only.

THE NEW IMPERIAL MUSEUMS OF VIENNA.

THE competition for the two new Imperial Museums, in the Ringstrasse, opposite the Hofburg, or Imperial Castle—of one of which we give a view—was a severe artistic contest. The designs submitted were many, and the final choice lay between two rival plans, those by the architects Herr Hansen and Herr Hasenauer. Hansen's design is in the Greek style, of imposing exterior, with fronts facing the Ringstrasse, and with flights of steps, rows of columns, &c., the two museums being surrounded by ornamental grounds, and connected by an open portico. Hasenauer's project is much more sober, in the style of Italian Renaissance, retaining, however, the ornamental grounds. He separates the two museums, but places the main fronts at a right angle with the Ringstrasse, with their lesser fronts facing the latter, continuing them in a series of archways, in the style of the whole, across the Ringstrasse, and forming open terraces over it, past the two narrow fronts of the present Burgthor (which remains free), over the Heldenplatz, to the Kaiserburg, the rebuilding of which at no distant date is taken account of. Hansen's design represented Greece, the purely artistic; that of Hasenauer the realistic, practical. The contest of the partisans of the two designs waxed to such a pitch that the artists even petitioned for Hansen's plan. Listening to both parties, and recognising the merits of both designs, the Court had the happy idea of submitting the rival claims to the arbitration of the most celebrated of living German architects, Semper, and he chose Hasenauer's project, making, however, a few improvements.

The works were actively taken in hand, and will soon be completed, while the annexe leading to and across the Ringstrasse, as well as the new Kaiserburg, which is to extend in oval form to the flanks of the Volks-Garten and Kaiser-Garten (People's Gardens and Imperial Gardens) will be left for the future,—truly a colossal undertaking, and one which, when carried out, will be of the most imposing grandeur.

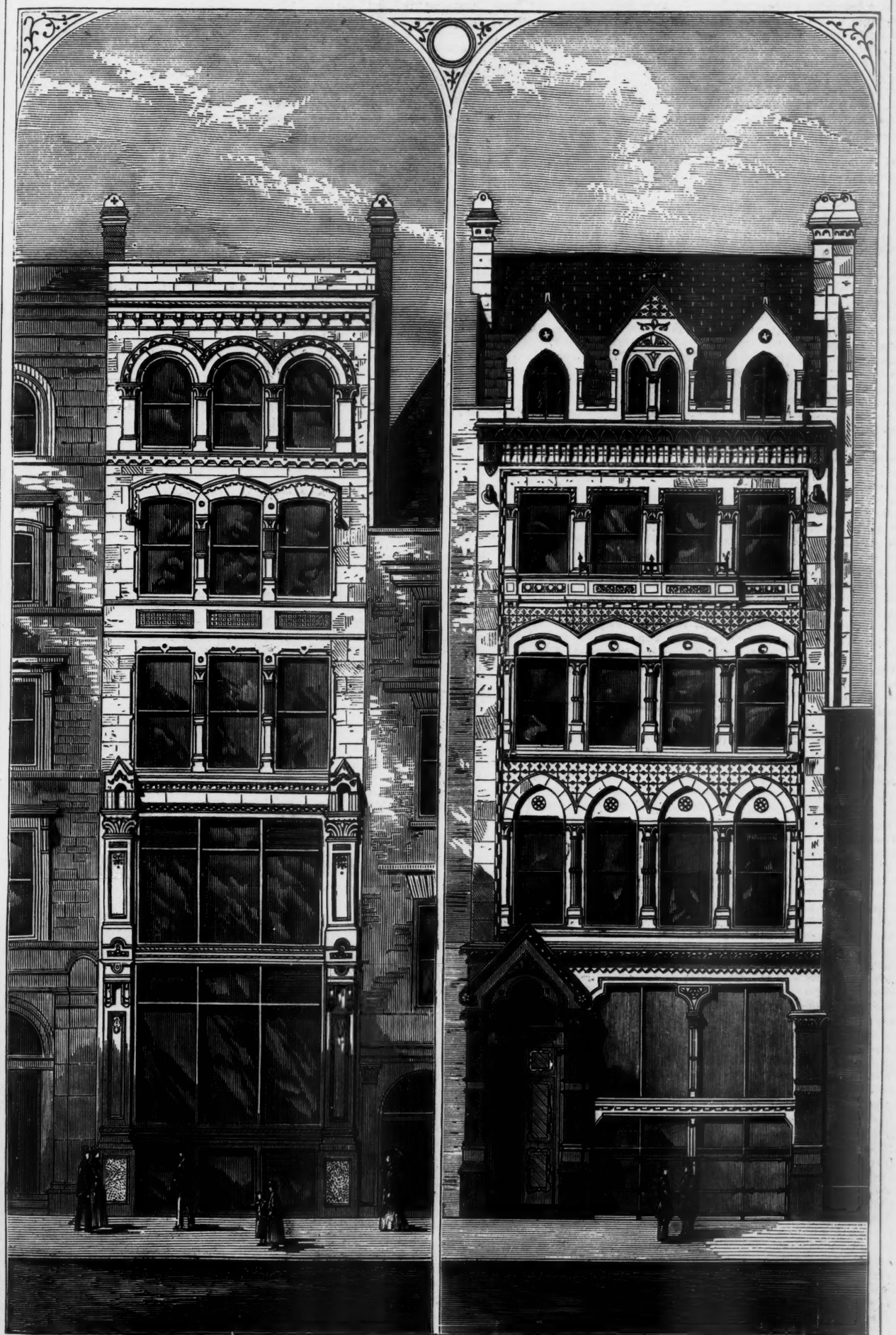
The illustration, as already remarked, represents one of the museums, with its lesser front to the Ringstrasse. It will face with its principal front that of the other, placed at the proper distance; the intervening space being laid out in ornamental grounds, in the centre of which will be placed the colossal Maria Theresa monument. Uninterrupted light and rooms of the required dimensions form features of Hasenauer's design, while Semper has added statues and improvements; the former to be of representative men and periods of art.

In the construction of the buildings, proper care is taken to preserve in the interior the required side and high light. Larger rooms, supported by marble columns, will alternate with smaller ones, some of the rooms to be decorated with frescoes.

When completed, the two museums are to receive the various collections, some of them of very great value, now scattered in unknown or unsuitable buildings, not accessible to students and the general public. Such are, among others, the Imperial Picture-gallery of the Belvedere, containing unknown treasures; a valuable ethnographical collection of specimens of the first periods of art history, among them treasures from Egypt, hitherto known to only few. Natural history collections, a museum of the history of weapons, and many others, will also find a more suitable home in the new edifices.

The placing of the museums athwart the Ringstrasse alone will prevent for the present their full display, but they will exert an imposing effect when the whole of the contemplated improvements are carried out.

NEW MUSEUM OF ARTS AND SCIENCES, VIENNA.——*One of the Two Blocks.*——HERR HASENAUER, ARCHITECT.



WAREHOUSE, MILK STREET. OFFICES, LEADENHALL STREET.

LONDON STREET ARCHITECTURE.—MR. HERBERT FORD, ARCHITECT.

LONDON STREET ARCHITECTURE.

NEW OFFICES, LEADENHALL-STREET.

THE premises, 89 and 90, Leadenhall-street, have recently been rebuilt for Mr. F. N. Lloyd, and comprise, on the basement, ground-floor, and three floors above, two offices on each floor (ten in all), well lighted in front and rear. On the top floor are one small office, and sitting and bed rooms for housekeeper. Lavatory, and "closet" are provided on the second-floor, and a group of "closets," lavatory, and coal-cellar on the basement, under the pavement.

The front, which is of Portland stone, with polished granite pilasters, is Gothic in style, with carving freely introduced.

The architect is Mr. Herbert Ford, and the builders are Messrs. Scrivener & White. The carving was done by Mr. Seale, of Walworth. The cost has been about 3,500*l*.

ADDITIONS TO WAREHOUSE, MILK-STREET.

This building has been added to, and now communicates with, Messrs. David Evans & Co.'s extensive premises in Wood-street and Milk-street, and consists of basement, ground-floor, and four floors above, all appropriated to warehouse purposes, with lift and fireproof floor, and is well lighted in the rear by large wells and areas. The front, which is opposite the City of London School, is of Portland stone. Mr. Herbert Ford is the architect, and Mr. William Brass is the builder. The carving was executed by Mr. Seale, and the cost has been about 3,500*l*.

CONSISTENCY AND REFINEMENT IN ARCHITECTURAL DETAIL.

ARCHITECTURAL ASSOCIATION.

AT the ordinary general meeting of this Association on Friday evening, the 7th inst., the president, Mr. John S. Quilter, in the chair, the following new members were elected, viz., Messrs. E. W. Poley, J. H. Churchyard, W. J. Ashdown, C. J. L. Sandilands, H. M. Wardrop, R. J. Lovell, G. H. Coldwell, and S. Hill. Five nominations for membership were read. The death was announced of Mr. F. P. Johnson, a well-known member of the Association, who took a very active part in the management of the classes and internal work. It may here be stated that the first visit of the session to works in progress will be made this day (Saturday) at three p.m., to the new Natural History Museum, South Kensington, when Mr. Waterhouse, the architect, has kindly promised to conduct the members over the building.

Mr. J. P. Seddon then read the following paper "On Consistency and Refinement in Architectural Detail":—Whether or not, at this festive season of the year, the claims of architecture to an audience can compare with numerous other counter-attractions, the title I have chosen for my lecture will have occupied a place upon your programme throughout the session, and cannot have failed altogether in conveying thereby a portion of the lesson I proposed to draw from it for the benefit of your members. Indeed, I almost fear to darken that counsel by many words in dilating upon a theme whose purport is more or less self-evident, but in discoursing upon which one might be tempted to drift to the wide area of "things in general" whereto my friend, Mr. Burges, drew your attention at your last ordinary meeting. Consistency and refinement are the qualities in relation to building which constitute it architecture, with which, therefore, they may be almost taken as synonymous. Consistency, at any rate, is the characteristic of all true architecture of the past, and refinement of that of its best periods. The want of both distinguishes most of the buildings of the present. I could not help being struck by the tone of the discussion that followed the reading of Mr. Burges's paper,—nearly all of the speakers seeming to seek a solution of the great problem of the day: how they were to ally æsthetic architecture to the practical building which alone the world imperatively demands; whether they might or should be eclectic; whether buildings copied from the works of the Greeks, Romans, Goths, or Italians, ought or ought not to stand cheek-by-jowl; whether sash-windows were to knock all artistic fenestration to the winds, or mullions and transoms to be crammed down the throats of our employers, whether they would or no; or whether a compromise could, by any possibility, be effected by leaving the lower sash to the tender mercies of plate glass (described in a letter to myself by one enthusiastic reformer as an "emanation from the jaws of hell"), so long as the upper one might be subdivided by those bars to which Gothic mullions had dwindled in the days of Queen Anne, and which are now counted by some as a direct emanation from Heaven. One despairing appeal, however, at the close of the discussion, touched my heart with infinite pity; it sounded so like that of the Thessalonians to St. Paul, "Come over and help us." What were they to do? was the pertinent but pathetic question put on behalf of himself and fellow-students by the evidently earnest-minded inquirer. Well might Mr. Burges, aghast at such a culmination to the host of questions that had been put to him, exclaim that he had but agreed to give one lecture, and then found himself asked for two. But I could not bear that no attempt should be made to satisfy so natural a craving, and so turned to the speaker, and said that my lecture, then as yet unwritten, should be a reply to his query, and so I have made it, so far as I have been able to do so. "Eclectic," to continue the use of that euphonious adjective to describe a jumble, we are and must remain, simply because nine-tenths, or rather ninety-nine one-hundredths among us, are not really architects at all, but simply highly-respectable gentlemen who have mistaken their profession, or, at the best, building-surveyors, among whom, however, the public, Gallio-like, caring for none of these artistic things, scramble their commissions for buildings. They (*i.e.* the public) would nevertheless gladly, if they saw their way, follow Sir Henry Cole's advice, and give them, if they could, to men who make no pretence at all of adhesion to art. Sir Henry, however, is not the originator of this idea, for the Romans forestalled his notion of getting their plans and construction settled first virtually by engineers, and then getting Greek architects to dress up their elevations for them. I could not but regard the crowd that honoured Mr. Burges with their attendance. I cannot think of the numbers of students enrolled on your list of members but with vague wonder as to how many, or rather how few, possible germs of true architects there may be among them. I am a sad sceptic as to there being any great amount of good, if any, to be done to architecture if the most Utopian schemes for education now clamoured for were realised, or as to whether any moral pumping will discover wells of genius now undreamt of, but which, somehow, were reached with ruder appliances in many a bygone, nay, even uncivilised, age. Educate, however, by all means, for the truth is we do not want genius so much as common sense, and it is better that the surveyors who have to look after speculating builders, and to whom the public give their commissions, should be educated. It will be better, if they will be "eclectic," and cannot be anything else, that they should know one of what they term "styles" from another. They might learn to be ashamed of the murderous mixtures of such which some of them now concoct under cover of their favourite euphonious adjective. But that one real architect will be discovered or elaborated by the process who would not have come as well to the front under Mr. Smiles's system of "Self-Help," I, for one, do not believe. To the querists who ask whether they may build in this style or that, or first in one and then in another, I reply you do not know,—you have not a conception,—of what architecture is. It is not a thing of shreds and patches; it is simply building with consistency and refinement. It is a universal language, although there may have been many dialects and many *patois* of it. When men had something to say with it, they recked little how they said it. You vex yourselves only with the manner, and forget that there is any matter concerned. You compose with it nonsense-verses, like boys at school, and forget that such were invented only for exercise, and that now you are men you should lay aside childish things. You run to all the ends of the earth to find out some uncouth style of talk, different from that of your fellows, in the hope that it may distinguish you and impose upon the public an idea that you are original; and the last dodge has been to imitate the gibberish of the time of Queen Anne! However, having heard me so far with more or less patience, you will perhaps allow that it is at least probable that the number of those architects who could work out successfully for themselves the problem for which so many seek to know the solution is likely to be but limited. Let me ask each of you individually to consider himself the "coming man" for the purpose, that I may not appear to be shirking the task I undertook of showing you the road. I have no manner of doubt in my own mind as to this, though I may have considerable doubt as to my own power to make good use of it. I may say, however, to you, for your consolation, as I have often said to myself for my own, that it really matters comparatively little whether Nature has endowed you with genius or not, for if you will keep in the right road, and obey the dictates of common sense, your work will be right, if not brilliant, and in time is sure to bring its reward. I must, however, put the problem and my method of its solution before you in my own way, and to do so I shall endeavour to show you first what, in my opinion, architecture is not, and then, not to leave you in the lurch, I will go on to show you what, according to my creed, architecture is.

What Architecture is not.—The president of the Royal Institute of British Architects, in his opening address of this session, took occasion to lament the lack of architecture in the miles of speculative building of the day. I am going to ask you to join me in a wail of woe ever works supposed to be architectural in comparison with those; in fact, over the rampant iniquity of sins of actual commission as still more to be deplored than those of simple omission. Architecture parodied is, I cannot but think, more offensive than the mere ignoring of architecture. I do not, however, wish you to think that I desire in any way to defend the doings of those arch-offenders against both science and taste, the speculating builders, to whom the astute English public has delivered itself over a willing victim, body and soul. Stupidly housed in ugly, inconvenient, and monotonous brick boxes, with holes cut symmetrically in them, the public stays contentedly until a fever breaks out or a frost sets in. Then, however, it immediately raises an insensate howl against the profession (which was never consulted), because sewer-gas was laid on to, and fresh air carefully kept out of, its dwellings, and because all the pipes were left exposed to the elements. It was not, however, such prosaic evils as these that constituted the grievance alluded to by the president. His was one that the public cares far less about, rightly or wrongly,—rightly I am disposed to think. His sorrow was rather because our suburban terraces are not, to borrow again the word which Professor Kerr so kindly invented, "architecturesque"; for whatever his own treatment of them might be, that is what they would become in the hands of those members of our profession to whom our street architecture usually falls. Now, seriously, would it be of the slightest benefit to any living soul that they should so be? The august architectural profession has, no doubt, missed the commission which it would have well earned had it only acted in its respectable, though lower, capacity, of surveyor, and simply stopped the scamping of the drains and attended to the proper disposition of the pipes. In other respects, if architecture be what the majority of the architects to whom our principal street-buildings are relegated seem to consider it to be, I declare I think the speculative builders have the best of it; for since refinement is generally conspicuous by its absence from the works of both alike, there is a consistency, even if it be but of ugliness, about the erections of the humbler class of builders which in my opinion might bear away the palm. The backs of the houses erected by the latter correspond better with the fronts, whereas a glance from the windows in the rear of the "architecturesque" structures of the former shows that their idea of architectural beauty and fitness is but skin-deep. This question of the comparative disadvantage of building without architecture at all, and of the mock architecturesque, is being daily forced upon me most unpleasantly in the neighbourhood of Westminster, wherein I happen to live. There vast buildings, public as well as private, have risen and are rising like mushrooms. In some of these architecture is altogether set at nought, and in others its name is, as it were, taken in vain; and I am quite at a loss to decide which of these classes may be considered the worse or the more vulgar of the two. It is certainly a saddening reflection, which must sooner or later compel the consideration of public authorities, who at present seem to trouble themselves little about this aspect of their business, that men may be allowed to rear up in the sight of their fellow-men,—I had almost said of angels,—Babel-like towers of naked brickwork, such as those with which Mr. Hankey has lately disfigured this part of the metropolis. [An illustration was here shown of Mr. Hankey's

building, labelled "Building Barbarous."] One shudders to think of what our city would become if the example this gentleman has set in this building were to be followed extensively,—and I am informed that he has actually in hand a still larger block of similar character, intended to be carried up several stories higher! Whether such monstrosities could be made tolerable by a veneer of the fashionable sham architecture or otherwise is the question I would now propose for your consideration. May we turn to the neighbouring great work [the new Government Offices, Whitehall] by the President himself to see how it is likely he would have treated it? Should that ten-storied structure be covered with an "architecturesque" mask representing some five or six? If so, how would the tenants of the floors (not being Government clerks), whose windows had to be crammed in under archivolts, like it? [Here a drawing was exhibited of Mr. Hankey's house dressed in the Italian fashion,—many of the details being copied, we ought to say exaggerated, from the new Home and Colonial Offices,—and labelled "Architecturesque - Barbaric; Nonsense Verses."] And must the mighty semblance of a temple with acrobatic orders thus piled up, be similarly represented on all four of the ungainly and equally visible sides of the structure, and if so, how is the cost to be borne when no Imperial treasury defrays it? Or would the usual architects' dodge suffice in this instance, of confining the mask to the front, in the hope that a like idiotic fit would in time seize the neighbours on either side, so that hideous erections of theirs should shut out the hideousness of it? [Here another sketch was shown of the same building in the garb of the revived "Queen Anne" style of the present day, and labelled "Queen Anne of 1876, compiled from the latest and best authorities." Much as Mr. Seddon is opposed to "eclecticism," he appeared to have been so far eclectic in the "compilation" of this sketch as to include in it some of the most notable features of Mr. Norman Shaw's "New Zealand Chambers," Leadenhall-street; Mr. Bodley's Office for the London School Board; and of other of the principal buildings of the "Queen Anne" revival, some of them greatly differing in design and treatment.] Mr. Hankey has, I must say, wisely for his own pocket, abjured all such architecturesque treatment, and perhaps done some good by letting the problem he has not tried to solve proclaim itself so horribly to the world. But was no solution possible? Go to Nuremburg or Cologne and see, as you may, in many even of the back streets, how our Mediæval ancestors would have gloried in the opportunity such a scale of building would have given them. They would have needed no expensive false mask to have hidden the simplicity of their structure; and while we glance at their bold treatment, we should see how consistent they would have been in this as in all their works, and how a little refined detail here and there would have redeemed even their plainest buildings from becoming monotonous. [Here two drawings were exhibited of the same building, with suggestive treatment by the author.] Think, again, what they would have done with a *façade* like that of the new Aquarium at Westminster, which is some hundred yards in length, without the necessity to make it like a barrack with a multitude of windows, as most modern buildings are almost compelled to be, especially if they had the means to expend in decoration somewhat more to the purpose than the regiment of mer-men and mer-maidens and mer-babies, which disport their conventional floriated tails there for the amusement rather than for the edification of the populace. Shall we pass on in our search for modern consistency and refinement to the buildings rising, not from the designs of speculating builders, on our splendid new thoroughfare, the Embankment, where sweet if flimsy things in gables are rendered in French Renaissance and nondescript "Queen Anne"? Or shall we fare better if we continue our route towards the City, amidst *façades* overloaded with mere architecturesque details, with here and there a pleasing because more modest exception, such as Mr. I'Anson's Bible Society's Office, in which refinement is to be found? Too generally, incongruous blocks, as if parts of imported palaces, come to an untimely end, and are jostled side by side in ludicrous oversight of their perspective combination. The *tout ensemble* is simply shocking to any person of taste. One at least escapes such horrors if one confines one's work to the suburbs, where the sins, not seldom to be found, are but mild imitations of the vagaries of what is assumed to be higher art. Such, gentlemen, are examples of what architecture is not. My present purpose were, however, scantily fulfilled by my merely giving you a moral indigestion and distaste, perhaps, of the more seasonable Christmas fare awaiting you at home. I want to show you that consistency and refinement are both practicable and desirable. Let me ask you, then, to glance with me at the past history of architecture, from a point of view in which it may be seen in its unity, and not in its diversity,—as a development of principles, and not as a mere statement of isolated facts. Here it is that we shall find

What Architecture is.—I would ask you, then, to follow me while I travel very rapidly over, not new ground, but with perhaps a somewhat new light thrown upon it, if one can judge from the remarks I have referred to, and constantly heard, as to the ordinary light in which it is viewed. This ground is the history of the architecture of the past, and the light in which I would have you regard it is that which displays it as one sequence, and not a succession of separate styles. Architecture, so long as it was a living art, ran an even progressive course, and its sequence was only once broken, or rather, it may be said, suspended, when its ancient, or what we now call Classic, development went astray. But the clue was taken up again when the dictates of common sense re-asserted themselves, and it was never after lost until the course of art was altogether run out, and its life destroyed. The seeds of the art were sown in the East in the early ages of the world, fostered by the love of pomp and display, which has ever been essentially Oriental, and for which the *Times* has recently been unduly censured for terming "barbaric." The wondrous works still extant in India thoroughly deserve the admiration which the attention now fortuitously directed towards them by the occasion of the Prince of Wales's visit to India has aroused. Rich in fancy and elaborate ornamentation, often charming in outline, grouping, and proportion, and far indeed from being in any sense barbarous, they are, as the buildings of these Eastern countries always have been, essentially "barbaric," and to avoid repetition in this short sketch we may class under the same general term all the Saracenic works of later ages which have been derived from them. They are the storehouse whence the purer, if less original, Western architects have drawn their ideas, and whence, doubtless, many others yet might glean with advantage. But in themselves the Oriental buildings do not deserve the name of architecture, and their grandest triumphs have been gained, as it were, by brute size and mass, and their richest and most elaborate temples are but gigantic trifles, that if executed on their more legitimate scale would more fitly adorn the workbox or the mantel-shelf, devoid alike of consistency and refinement in a true sense. The Greeks brought this chaos of luxuriance into order; they culled, tended, pruned, and developed its choicest germs. They made architecture a science and art, and brought it within the domain of common sense. Their creation, out of the discordant elements that lay around them, was the Doric order. That was their ideal of architecture for all purposes of seriousness and dignity. We hardly sufficiently realise this simplicity, this unity of their conception, for we talk of the Greek orders when we should only speak of their order,—for the Ionic and Corinthian were but later extravagances, occasional relaxations, playthings upon a small scale. The perfection of the Doric order for its purpose has been often, but never can be too often, descanted upon. Its supposed derivation from wooden hut construction M. Viollet-le-Duc has disposed of, and shown that it was nothing more nor less than the most common-sense development of the stone column and entablature, wrought out in perfect taste, combining contrast and harmony in due proportion, and being the embodiment of consistency and refinement in trabeate architecture. But the purpose for which it was invented, though simple, was special, and that purpose is gone. It was for what may be termed external architecture for a sunny climate,—for a one-storied covering to surround a temple, the temple itself having but a plain wall within. The Doric order has given us a standard of architectural proportions, but is useless for more complicated conditions of building, its application to which at once destroys the very merits which are our admiration and instruction. Greek architecture is, therefore, to us a dead language, —one we should learn as the foundation of our own, but to revert to mere copying of which would be its desecration, and our utter confusion. The restless activity and love of pomp of the Romans soon led that nation to need buildings of far different character. Though able constructors, they had no art of their own to make their buildings architectural; so when they had piled story on story, and vaulted vast spaces, they, instead of following methods common-sense would have dictated to them, of ornamenting naturally their own construction, they sent to the Greeks to come and put a veneer of sham architecture to conceal their construction. Thus were sown the tares in the field which had hitherto grown only good grain, and hence all architectural evils spread. No more "barbaric" nor civilised, but barbarous and false art flourished with a growth so rank that it soon spread through all known lands. First, the column and its entablature were ruined, the proportions spoiled, the enrichments overloaded and degraded, consistency outraged, and vulgarity substituted for refinement. At last, when the cup of Roman iniquity, artistic as well as moral, had overflowed, it was dashed to pieces, and it was not till then that any hope of the resuscitation of architecture upon a true and healthy basis could exist. Then when men came to their senses, and the Christian religion had taught them to act simply and wisely, they found scattered everywhere around them the fragments of the Pagan architecture. The columns and entablatures that encumbered the ground they set up to do duty for their wants, not to pretend only to do so. Soon they found the entablatures *de trop*, and did without them, spanning from column to column with arches, whose edges they learned by the light of their own common-sense to mould and chamfer, to carve and decorate, as the feature required, instead of bending the mouldings of an architrave round it, as the Romans had done. To support their vaulting they used shafts no longer in classic proportions, but as their nature needed, and step by step they developed an appropriate mode of building their many-storied or lofty single-storied and vaulted structures, which it had been the business of the Romans to have done, but which they had left undone. No longer vapid and monotonous parodies on a monstrous scale of the delicate and pretty, if not too consistent Ionic volutes, or the charming acanthus-leaves of the capitals of the monument of Lysicrates, but bold and vigorous ever-varying carvings, into which the carvers threw their whole soul, and cut out, for the very pleasure of doing it, the men, the scenes, and the things around them. There was plain common-sense and admirable consistency in what they so did, and as to refinement, that was to come in good time, but for the nonce could be dispensed with. At the time of the partition of the Empire, the nascent stream of Christian art became subdivided, one branch remaining with Rome as head-quarters, and more or less influenced for the worse by the vices of the works forced upon it as models; the other at Byzantium, drawing healthier inspiration from the purer old Greek work left in that locality. Of this latter, much of that sculptured in Venice and Ravenna leave little to be desired on the score of refinement, together with plenty of vigour, while the treatment of Sta. Sophia at Constantinople shows the consistency maintained between the construction and decoration, which remained an unsolved or mis-solved problem in the hands of the Romans; as, for instance, in the not dissimilar class of building, the Pantheon at Rome. Under Charlemagne the Western Empire was again united, and the progress of Christian art, which had become sluggish, was wonderfully quickened. Thenceforward it flowed in a rapid and mighty torrent along the banks of the Rhine, and in every direction westward through Europe, in the phase of the round-arched Romanesque, which combined all that had been developing slowly in the Byzantine and Early Christian Roman. In this, stupendous problems of construction and of consistently making the decoration explain and emphasise the construction, were well wrought out. But of refinement, as the Greeks would have understood it, there could not be much as yet. Thus we miss it, or look not for it, in the great Rhenish churches, which awe us by their grandeur; yet, when the rush of the fierce tide had passed, and men had leisure to devote to their work, it is astonishing what an amount of refinement they were capable of. Our own Norman version of the Romanesque is worth far more study than is often devoted to it. A noble and vigorous example of it, brimful of suggestion, is Kilpeck Church, in Herefordshire,

the chancel-arch of which is strikingly fine, and its study would be a good corrective for those whose work savours too much of refinement without its equivalent of consistency and vigour. On the other hand, there is a doorway at Patrixbourne, in Kent, to name one among many such examples, the delicacy and refinement in the details of which are absolutely remarkable. Then I may halt again at the next stage in our insular career (mind you, I do not talk of styles), which followed so hard on the former one that the actors in this work could recognise no such line of demarcation between that of themselves and their fathers, as we are pleased to discern. The Transition epoch, with which Mr. Edmund Sharpe has so identified himself, seems to me almost to balance consistency and refinement in equal scales. I need not trench upon his peculiar province more than to name, in passing, Fountains, Kirkstall, Rievaulx, and Byland as a few noble specimens among the host of glorious works raised by the Cistercian order, the consistency throughout which is remarkable, and the refinement not less so, and just of the right kind, well balanced with simplicity and moderation. I may, perhaps, point to a humbler and less-known example, a few fragments of which remain attached to a farmhouse on the north coast of Norfolk,—Bromholme Abbey. Last autumn I reached it with no small difficulty through a wilderness of nettles, and found a part of the north transept and chapter-house perfect *bijoux* of art internally, the refinement of their detail, considering the isolated position and evidently small and unimportant character of the institution, being quite astonishing. Then, when the Gothic style was fully established, think of the wondrous succession of works of the Lancet, Geometrical, and Curvilinear periods. Our noble cathedrals are too well known to need mention; but, to my mind, the inexhaustive mine of consistent and refined art which we have in our parish churches is even more noticeable. When I look at such a one as West Walton, in Norfolk,—I name but a single example of the crowd of which that county alone can boast,—or Stone Church, Kent, or a score of others that come to my mind, I am fairly aghast at the fertility of invention shown in so many separate types, each so nearly reaching, and at least aiming at, perfection. Nor even in the very last, the Rectilinear period, is the scientific progress of architecture arrested; and though we may think its artistic excellence less, it is only because we architects rightly prefer the more modest work that preceded it. We cannot, however, deny that the aim of the last efforts of Mediæval architects was a grand one, nor say that they were not consistent in following that aim, or that their details lack refinement. At times they were almost over-refined, as may be seen in the screen in the out-of-the-way village church of Llangwm, in Monmouthshire, a representation of which I have just had the pleasure of presenting to your Association, and of which Mr. Gladstone remarked, in his recent address at Greenwich, that it resembled jewelry rather than architectural ornament. I cannot but think that the principles of this Mediæval art lingered longer in England than elsewhere, and that our domestic architecture realised its spirit best of all. It struggled long against the flood of the spurious revival of the old Roman which had paralysed it on the Continent. The fading merits of Elizabethan and Jacobean are due to it, and its flickerings before it died entirely out were the salvation of those of the time of Queen Anne from oblivion. Thenceforward architecture as a living art was not. The *savants* and *dilettanti* of Italy exhumed the fragments, not of Greek art, but of the always-false-from-the-first Roman. Consistency could not be when the structure and the *façade* had no necessary connexion, and though refinement could be pedantically imitated, it was only as the lesson conned by copyists, who had nothing of their own to refine. Such as I have described it to you was the architecture of the past, a universal and intelligible language for all the nations of the earth: progressive, simple at first, and complex at last; consistent always; and refined when it reached sufficiently settled conditions. It knew nothing of "styles," but of style, in the sense M. Viollet-le-Duc has so ably treated of in his "Dictionnaire," it took the utmost account. Now, you ask what is to be the architecture of the future, and I say will you go back to the prattle of its childhood because you lik baby-talk? Will you ignore all that science has done for it, and deny yourself the arch, or the pointed arch, because you like the work of those that knew not of such things? No; you are the heirs of all the ages, and every detail man has devised is your heritage, which it were folly in you to set aside. But if this universal language is for your use, are you going to make only nonsense-verses with it, as it was in the days of your schooling? Are you going to stick pediments on the tops of gables and chop them in two for the diversion of the ignorant? Are you going to set up as crowning ornaments to your buildings piles of obelisks and pots with balls on them in ludicrous guise of cruet-stands? Are you going to turn curled brackets upside down, and torture their outlines, in the vain hope that your crotchets will be thought original? For goodness sake, if you will be eclectic, out of the vast repertory I have shown that you possess, choose the best, or what is at least consistent with common sense when applied to the purpose you propose to put it to; and strive, by refinement, to be gained by study of the best works of the past, to be in your own less barbarous or barbaric than is most of the architecture of the present.

A discussion followed, a report of which we will give in our next.

STONES AND MARBLES OF IRELAND.

BELFAST ARCHITECTURAL ASSOCIATION.

AT the last general meeting of this Association, Mr. R. Young in the chair, Mr. F. W. Lockwood read a paper on "The Arrangement of Materials in Construction to Produce Satisfactory Effects." In the course of it he said,—Stone plays an important part in our buildings, and deserves a large share of our attention. Its chief natural characteristics are breadth and strength, and these we must seek to retain in our work. Foremost on our list come the granites, and no stones retain their natural colour so well as these. Our grey native granite is much in demand—that from Bessbrook is lighter, from Goraghwood darker in tone. The grey Dalbeattie, from Scotland, is lighter than either. There is a beautiful silver grey granite from Donegal, very fine in texture, but not in the market, I believe. There is also the red Peterhead. The flesh-coloured granite from Westmoreland I have not heard of as being used here. The use of granite may be either in mass for a whole building or story, or in such portions as polished shafts. Nothing gives such an idea of strength as polished granite, doubtless from the suggestion of hardness which it conveys. A further consideration of the application of granite may be taken with the other building stones. For these we are fairly well off here. Nearest to us is the Scrabo sandstone, of which the greyish-white quarry, known as "Cargo's," is no longer worked. The colours may be described as pink, grey, greenish-grey, and the mottled beds of hardened chocolate-coloured mud, which are only to be avoided. The pale-red Dundonald is only an offshoot of the Scrabo. The imported Dumfries and Runcorn stones are better reds and are harder, though perhaps not more durable. Most of the Scotch stones are of an unpleasant tone of colour, an ochreish yellow predominating, and they have the further defect of rapidly decaying. Glasgow, however, has recently sent us a good cold light grey stone from Messrs. Baird & Stevenson's Tunnel Quarry. A building is now being erected in Lombard-street entirely of this stone, but I question whether a mixture of some brighter varieties would not turn out an improvement. To go back to our native stones, the Dungannon is of a pleasing warm colour, though sometimes inclining to a rusty colour; the Cookstown is a beautiful light grey, nearly white. These constitute our principal freestones; and, before taking up other stones, we will make a few general remarks on the application of the foregoing. In the first place, no stone, however carefully selected, will be perfectly uniform in colour, and to insist on such is a sure sign of a depraved, or at least imperfectly developed, taste, consequently there will turn out a pleasing variety of colour in a stone wall, even without any conscious intention on the part of the builder. It is strange that this result does not more often suggest a little selecting care, when the hint is thus given daily before our eyes. For instance, the grey and greenish stones of the Scrabo will work up for the body with pink bands and dressings. The Scrabo again makes a good body with whitish grey Glasgow, or still whiter Cookstown. There have been several buildings erected recently of Dumfries or other red stone, with white quoins and other portions, the Armagh limestone working in for this purpose with a more sparkling effect than any other. By itself it is grey, seen beside red stone it appears white, yet still a toned white. I do not remember a happier instance than in the late Mr. Pugin's Catholic Church, in Thomas-street, Dublin. I think that some light stone,—Cookstown, for instance,—would work in with pretty good effect with red stone dressings. A light grey or yellow stone does very well with bands of darker stone, such as some of the bluish limestones from Benburb, near Armagh, for instance. As a general rule the whiter and brighter stones should be sparingly introduced, and in the higher portions of the building. The glittering white stone, brought from somewhere in the South, which forms the spire of the Seamen's Church, in Corporation-street, for instance, is an example, but in this design, in some respects a really good one for a town church, there is a lamentable crudeness of treatment; the spire has no connexion with the tower, nor the tower with the body of the church, nor yet, again, with the pipe-stems which do duty for attached shafts round its sides. Some of the granite spires near Dublin also have a very bright effect. There are several local stones used in building to which I must now call your attention. Many of the slaty Silurian rocks, which spread over the length and breadth of the County Down, are largely used for common walling, and where the architect makes use of them they might claim more attention from him than they generally receive. Perhaps a purplish grey is their prevailing tone, but frequently the same or an adjacent quarry will yield red, brown, and greenish grey. A little thought and a trifle more per perch will make all the difference between a suite of stable or farm offices, or a demesne wall, being in harmony with the landscape or an eyesore to it. In the same way the basaltic rocks of Antrim and Derry are really of a variety of colours—grey, purple, black, and greenish grey, and vary greatly in the same quarry: selected and arranged in bands, many a common wall would show a much happier effect, only where is the British workman to see this and take the trouble? The white limestone, or, more correctly, hardened chalk, of the North of Ireland will never be much of a building stone, but it might be sometimes worth the architect's while to make a moderate use of it; perhaps many will consider it too pure a white, but skilfully used the effect I conceive would be brilliant and sparkling. Its application in a well-known house under Cavehill, though scarcely successful, is yet, at any rate, suggestive. Other hints may be derived from the walls along the limestone railway between the Antrim-road and North Queen-street. A main story of black stone, which, as I have shown, is, in reality, anything but black, with a small, well-managed upper story of white limestone, would have a very pretty effect on a hill-side, or in many a country or sea-coast district. In the same manner, where carriage was not too expensive, Dumfries or Dundonald stone, with an upper story of limestone, would not have a bad effect, care being taken in all these cases that the junction of the two materials be not too abrupt. That one colour should always be carried into another is a well-known law of colour composition. An upper story of brick on one of stone is also a very legitimate mode of obtaining effect, which might be much more often practised than it is. In judging of the effect to be produced by these different materials, we must bear in mind that no inconsiderable portion of the result is due to their texture, the stone being left rough or finely chiselled, the granite sometimes being polished, and the brickwork divided up into a number of small joints. There is another class of stones, too costly to be largely used, and more adapted for interior than exterior work, especially in this dripping climate, where the rough-hewn seems more appropriate than the highly-finished, yet of considerable value, nevertheless, as accessories to the general effect,—namely, the various coloured marbles. Of these I prefer to confine myself to the native specimens, some of which, through the courtesy of the Messrs. Robinson, of York-street, I have now before me. There are, first, the red, or red-and-white, from Cork, and two specimens of dark-green from Galway. From the same county also comes this black specimen. Then there are these greys,—the purplish grey, or Irish St. Ann's, and the fossil marble, which is also in general a pure grey. The Armagh marble is a

mottled pink and sienna colour. I have also seen several specimens of a white marble from Galway from a quarry recently opened,—some almost pure statuary, and others more or less of a greyish tinge, but for architectural purposes white. Now I do not, so far as my own tastes go, recommend the facing of our buildings with marbles after the old Venetian fashion, but I think we can find some uses for them. For instance, in the tympana or spandrels of windows, and especially of doorways, in panelling under windows, between the cantilevers or consoles of cornices, and in medallions, at moderate expense, polished marbles could be introduced with great value to our street and other architecture. The field for their employment inside is, of course, undimited, but into that it is not my purpose at present to enter. One of the buildings of which Belfast, a city of merchants and manufacturers, has just reason to be proud, is the pile erected several years ago as a warehouse for Messrs. Richardson, Sons, & Owden. It is built entirely of Dumfries stone, and it is obvious that the architect has deliberately and intentionally avoided anything like a variety of colour, and aimed solely at a simple dignity of effect, as being most in consonance with so large a building devoted to purposes of commerce. Without saying anything in derogation of these intentions of the designer, and the result which he has achieved, it may, nevertheless, be instructive to consider for a moment how the same design could have been treated otherwise with respect to colour. The basement and principal story might have remained of red stone, as at present, the upper stories having a good deal of Cookstown stone or Armagh limestone introduced. Leaving the cornice, however, of Dumfries, the polished window and door shafts might have been either of the lightest grey granite, or, if obtainable, of dark-green marble. The beautiful carved medallions just above the basement could have polished green marble fitted round the carving, with a fine ring of white, to separate it from the red stone, and accentuate both of them. The introduction of green slates in the roof and turret roofs, and bands of the same in the main dormer, with a red clay ridge, would then further assist the colour effect. The medallions of the piers of the front railing would in harmony be filled either with green or light grey fossil marble, or a contrast be produced by a circle of white. I do not say that this would be a better treatment than the one adopted, it is at any rate a possible one. In smoky and large towns like this we need not fear the use of bright materials, they will tone down soon enough. Out in the country we may sometimes have to be a little more moderate, perhaps. In these northern climes the roof forms a more conspicuous object, and is architecturally of more importance to the design than in sunny regions of almost perpetual summer, and ought not, therefore, to be left, ornamentally speaking, to shift for itself.

At the close of the paper, a discussion ensued, in which Dr. MacCormac, Messrs. Lanyon, Watt, B. E. M'Allister, Marsh, and the Chairman, took part.

THE ARCHITECTURE OF THE FUTURE.

IT is seldom that architecture attaining its ideal has founded itself strictly on constructive necessities, using such ornament as could consistently be added, and no other. The human mind moves so slowly, and sticks to old habits so long, that for centuries after a nation has given up wood construction we find it copying wooden forms in stone buildings. It the gateways of Hindoo topes* enormous trouble and expense have been taken to procure posts and cross-bars of stones like long logs of wood; and, of course, the nail-heads, which in wooden construction fastened the logs, are carefully carved in the stone. Even in Greek architecture the triglyphs which divide the frieze into spaces are said to be the reminiscence of the notched ends of the wooden beams of the roof. As to Roman architecture, its decoration has nothing to do with its construction, but is the artistic expression of a wholly different one. In fact, the history of all arts and ornament consists very much in tracing ornamental forms back to some long-forgotten use which gave rise to them. Illustrations without end might be given of this, but the following, though slight, are as good as any. The holes arranged in waves and zigzags on the toe-caps of shooting-boots are the reminiscence of the old Highland brogues of untanned leather, which allowed the water to soak through them, and consequently had to be provided with little holes at the toes, where it squirted out again with the pressure of each step. Again, the bands on the backs of books have similarly now no constructive use, except in some of the best-bound books, in which they still cover the cords to which the pages are sewed. Such features in an art are not unnatural; on the contrary, they are analogous to the imperfectly-developed organs of animals which in the ancestors of the species had performed functions now superseded from change of habit and development of the organism.

To the old Gothic architecture belongs the almost singular merit of perfect truthfulness. When a form ceased to have meaning, it was frankly given up. People did not, as in most other styles, weakly cling to the dead carcass. This evidences, instead of the ignorance and darkness usually attributed to the Middle Ages, a freshness and independence of thought rare in the history of humanity, and of a wealth of artistic conception employed in making every new necessity beautiful which few races have possessed. If we could but do likewise, the result of working on the principles of Gothic architecture would be something very different from Pointed Gothic. We should have no pointed windows and quatrefoils, and buttresses which receive no thrust. We should not have in stonework chamfer-stops at the angles of windows, simulating wooden framed work, and all sorts of ugly and unmeaning notches, and roofs so steep that they endanger men's lives.* We should ruthlessly abandon forms that are unsuitable, which are not developed by our modern necessities, even though we love and admire them for their beauty. Can it be said that the Gothic revival has exhibited these signs of the true Gothic spirit? On the whole, certainly not; and we fear that such vices as appear in it are almost inseparable from the attempt to apply a thirteenth-century style to nineteenth-century use; that the Gothic style is, in fact, *the artistic expression of an obsolete mode of construction.*

Must we, then, give up hope of having a style of architecture suitable for our dwelling-houses, fitted for our use, and true and beautiful in point of art? Gothic does not answer our requirements, while the common builders' style, which is that of the houses most of us must live in, though the growth of our wants, and therefore in the main suited to them, becomes yearly more degraded and ugly.

"Why do not architects invent a new style?" say some. We might almost as reasonably ask grammarians to invent a new language. The time needed for the development of the great old styles of architecture is measured in centuries not in years, and though in the present day our thoughts move faster, this but makes us liable to see-saw from one style to another without any real progress, instead of sticking to a single style and steadily improving it.

"But what style should we adopt?" As well ask what language must we adopt. We cannot alter our history and our birth. As there is a common language which every one more or less understands, so there is a common architecture which arose with the growth of modern thought, and has been the architectural style of the country for the last three centuries, which every builder naturally follows, which every workman has been apprenticed to, and more or less understands. But while our language has been kept up to a reasonable mark of artistic excellence by a high standard of criticism and the constant efforts of educated minds, our vernacular architecture is characterised by the vulgarity and commonplaceness of the men in whose hands it has been left. The interest of refined and educated minds for the last thirty years has been directed not to improving the vernacular style, but to the hopeless attempt of supplanting it by another, which appeared at first to flourish, but has not taken root in the soil of the country.†

The Grattan Memorial.—The statue of Henry Grattan, one of the latest and finest works of Foley, erected in College-green, Dublin, has been unveiled.

* See photographs in Fergusson's "Tree and Serpent Worship."

* In old buildings these steep roofs had usually a parapet at the cornice, which saved any workman, slipping on them, from falling over the wall.

† From an interesting paper on Gothic Architecture, in *Good Words*, by Mr. J. J. Stevenson. Readers of our earlier volumes will recognise advice given by us, again and again, long ago.

THE NEW BATHS AND WASHHOUSES IN SOUTHWARK.

THE ratepayers of the parish of St. George-the-Martyr, Southwark, have declined to follow the example of several other neighbouring parishes, which have recently refused to adopt the Baths and Washhouses Act. At a meeting held last week, specially for the purpose of considering the desirability of adopting the Act, a resolution in favour of establishing baths and washhouses in the parish was unanimously carried. The statements made by several of the speakers at the meeting were both important and interesting, and conclusively showed that the introduction of baths and washhouses in the parish was absolutely necessary in the interests of the health and general sanitary condition of the inhabitants. Amongst other facts laid before the meeting, Mr. Bailey stated, on the authority of their medical officer, that they had 340 families amongst them in the parish, living in houses that were condemned as unfit for human habitation. In addition to this sad state of things they had from 1,500 to 2,000 families living in rooms where there was no proper convenience for washing, the consequence being that the water had to be boiled in a kettle or saucepan on the fire.

CASES UNDER METROPOLITAN BUILDING ACT.

WOODEN BUILDINGS.

AT Hammersmith Police-court, Mr. Moseley, district surveyor for Fulham, attended before Mr. Ingham to support adjourned summonses against Mr. F. W. Serff, a builder of Star-lane, North-end, for erecting wooden buildings. The summonses were adjourned to give the defendant an opportunity to apply to the Metropolitan Board of Works for their sanction to allow the buildings to stand. The defendant was called, but did not answer. The district surveyor said the defendant applied, and obtained the Board's sanction under certain conditions, but he had not complied with them. Mr. Moseley now applied to have the buildings removed. One of the cases was then gone into. The surveyor said that on discovering the building he gave the defendant notice to enclose the posts with incombustible materials. He had not complied with the notice, and said the buildings were only for a temporary occupation. There was danger to be apprehended from fire, as defendant had a great quantity of timber about the building. Mr. Ingham required the building to be pulled down in fourteen days, and the defendant to pay 12s. costs. In the other case a similar order was made.

RELIEF OF LONDON BRIDGE.

AMONGST various schemes submitted to the Corporation is one from Mr. J. Keith, who recognises the necessity of providing accommodation for the eastern traffic rather than meddling with London Bridge. He proposes a subway, with a lift not greater than that of a low-level bridge, and this is his plan:—If the shell of an iron ship were inverted, it would form a gigantic diving-bell, the space under which might be excavated, and the shell sunk to any required depth. Acting on this principle, he proposes a subway similar in form and construction, sunk in sections between guides, and connected at joints. Caissons on a larger scale, and at greater depth, have already been sunk, but in this case the work will be simplified, and the excessive pressure and friction on straight-sided caissons will be avoided by the form of section, which will only touch the sides of cutting at the base. The chief difficulty, the joint, by the method he proposes, will, he believes, be satisfactorily overcome.

The advantages of this scheme are, he thinks, not only that size, form, and depth are at discretion, but the work may be carried out with rapidity, and at a comparatively low cost.

DECORATIONS IN ELY CATHEDRAL.

SIR,—As Mr. Burges has accused Mr. Gambier Parry of violating "the very first law of iconography by putting shoes on his angels' feet," I wish to remark that Mr. Parry has sinned in very good company. Raffaelle, in his picture of the Archangel Michael, in the Louvre collection, has been guilty of the same offence.

R. G.

WAS IT FAIR?

SIR,—For the purpose of illustrating Mr. Seddon's paper at the Architectural Association the other evening, he first of all exhibited a drawing of Mr. Hankey's tall building in the Broadway, Westminster. This was followed by drawings showing the manner in which Mr. Seddon assumed that the same building would have been treated by Sir Gilbert Scott and by the "Queen Anne" revivalists. The whole of the drawings so far exhibited were pointed to by the lecturer as illustrations of "how not to do it." The meeting was then shown two drawings by the author, or prepared from his instructions, exhibiting alternate modes of treating the same building. Now, allowing a certain margin for burlesque, the exhibition of this series of drawings might have been fair enough if they had all been equally well got-up. The drawing of Mr. Hankey's building as it is, and of Sir Gilbert Scott's assumed treatment of it, were rough sepia drawings; the "Queen Anne" drawing was a still rougher pencil production; *but*, the lecturer's designs for the same building were artistically coloured perspectives! Was this fair? In ordinary competitions similar procedure would doubtless be strongly deprecated by Mr. Seddon.

X.

THE ROOMS OF THE INSTITUTE OF ARCHITECTS.

SIR,—The present structural arrangement of the premises in which the Royal Institute of British Architects is lodged is about as faulty in every particular as can well be imagined.

In place of the library above all things, and the offices and the meeting-room, being on the ground floor level, you are called upon either to ascend flights of stairs, or tumble down a few,—it is needless to multiply objections to any such arrangement.

The *locale* is good, but if insuperable difficulties exist as to the getting all the required accommodations at this ground level, with committee and refreshment rooms above, then other premises should be sought, and probably the Government would give all the aid in its power in furtherance of this view, as it has in the case of kindred societies, having less direct claims on its support. Let our legislators reflect how important the influences, and its sphere of action,—

"Usui civium, decori urbium,"

will perhaps one day be more studied by statesmen.

I.

FOREIGN BRICKS.

SIR,—I have read the article in your last issue upon "French and Austrian Bricks," and would like to hear further thereon from some of our own countrymen who may have had opportunities of seeing what "Mr. Alexis Fannier" has seen. To me it appears they are very far behind this country in their mode of manufacture; and to reduce clay "to small pieces with a pickaxe and shovel," and then put them into a kind of press, seems antiquated; but if they can produce 5,000 to 6,000 a day without steam-power, and by the aid of a man and young woman only, they must indeed be very far superior to the bulk of machines in use in England; and further information thereon would be highly desirable.

J. M. GIBSON.

THE CHURCH OF ST. MATTHIAS, POPLAR.

SIR,—In your "Church-Building News" Mr. E. Evans Cronk is named as the architect of the new chancel of the church of St. Matthias, Poplar,—formerly the chapel of the East India Company,—and it would appear to those not better informed on the matter, that the renovation of the whole fabric was his work.

I venture to ask you to correct this statement, as I myself planned and completed the works, with the exception of the chancel and a little exterior work, before Mr. Cronk became my junior partner, and they were nearly finished before I even knew him. Circumstances having occurred which led me to discontinue all further intercourse with the Incumbent of that time, I handed over the building of the new chancel to Mr. Cronk, with whom I was just then dissolving partnership, but having previously worked out all the drawings myself in order to insure harmony with the former work. Whether or not my exact design has been carried out in this latter work I am not aware.

W. MILFORD TRULOK.

*** The architect's name, in this instance, was forwarded by one of the building committee.

Royal Institution.—The first of the Friday evening meetings will take place on the 21st, when Professor Tyndall will lecture on the Optical Deportment of the Atmosphere in Relation to Putrefaction. On the 28th Professor Huxley will treat of the Border Territory between the Animal and the Vegetable Kingdom.

THE EXCAVATIONS AT IONA.

AT the last monthly meeting of the Society of Antiquaries of Scotland, Mr. W. F. Skene, LL.D., read a paper on Iona. After referring to the restoration recently carried out by the Duke of Argyll, under the superintendence of Mr. Robert Anderson, architect, and done, he said, in the most thorough manner, he said it had often been assumed that the Monastery of Columba was on the same site as the later monastery. The indications given by Adamnan pointed, however, to a different situation. Examining these indications, he found that it must have been situated on the highest point of the road passing to the north of the present ruins, and between this road and the Cladh an Disert. He traced the history of the wooden monastery of St. Columba through its various vicissitudes, noticing its destruction by the Danes, and the contemplated removal of the establishment to Kells, in consequence of the insecurity of the times. As the annals recorded in A.D. 807 the building of the new Columban House at Kells, and the Monastery of Iona appeared likewise to have been reconstructed in A.D. 818, it was probable that it was at this time built of stone like that of Kells, and not of wood, as it had previously been. The stone monastery, therefore, which succeeded that of wood appeared to have been always in the same place down to the time of its reconstruction by Queen Margaret of Scotland in 1064. The little chapel on the north side of the Abbey Church, and at a little distance from it, had an entirely different orientation, and on the west of the ruins there was a small building, which went by the name of St. Columba's House, which was similar in its orientation. It was probable, therefore, that these buildings formed part of the earlier establishment which preceded the Benedictine monastery.

INSTITUTION OF CIVIL ENGINEERS.

THE LABOUR MARKET.

AT the meeting of the Institution of Civil Engineers last Tuesday evening, Mr. George Robert Stephenson delivered an address on taking the chair for the first time after his election as president. In the course of it Mr. Stephenson referred to the mutual relations of capital and labour, and to the disturbed condition of what was called "The Labour Market." Speaking from his own experience in the direction of mining and mechanical works, he said that mutual confidence, which was essential to success in manufacturing enterprises, seemed to be further and further from realisation, for some of the rules laid down by Trade Unions were incompatible with justice, either to the masters or to the men. Thus the Union rate of wages was fixed without regard to the ability of the worker to produce, either in quantity or in quality, labour of higher value to the employer—a result which was unsatisfactory to the ingenious skilled mechanic, and which had a tendency to deteriorate the work itself. In this way foreign competition was fostered, and engineering and ship-building works were greatly on the increase in places which formerly depended on this country for their supplies. Again, the reduction of the hours of labour had led to "idle time"—a rise in wages not being followed by increased earnings, so that neither the men nor their families were benefited—while machinery and floating capital were frequently lying unproductive. Mr. Stephenson thought these great evils could only be mitigated, so far as the present generation was concerned, by the strong determination on the part of the men themselves to stamp out the cause of so much unhappiness,—the abuse of a luxury to which, in moderation, every working man was entitled.

WORKS OF THE SCHOOL BOARD FOR LONDON.

THREE new schools have been publicly opened during the last fortnight in the suburbs of London. One in Poole's Park, Holloway, leading from the Seven Sisters-road (by the Lord Mayor), on the 4th inst. This school is a two-storied building, the ground-floor being devoted to infants, and the upper to boys and girls. There is good accommodation for masters, mistresses, and caretaker, with extensive playgrounds. The heating is effected by a system of hot-water pipes and air-flues, worked from a central boiler and furnace. The school will contain 716 children, and the amount of the contract was 7,296*l*. Mr. G. S. Pritchard, of Finsbury, was the builder, and Mr. Ayres clerk of works.

The second school is situated in the Blackheath-road, not far from High-street, Deptford. The infants' school forms a basement, the principal entrance being for the boys, by a handsome flight of steps and portico, and the elevation is further enriched with some carving, in red brick, by Mr. McCulloch. There are three stories, the girls being on the first, and the boys on the second. The playgrounds are ample, and the situation very open. The accommodation is for 767 children, and the amount of the contract is 7,283*l*., the contractor being Mr. S. J. Jerrard, of Lewisham, and the clerk of works, Mr. Jackson.

The third school is at Peckham, close to the High-street, and consists of an extensive two-storied building, somewhat in the form of the letter E, having the main frontage to the Sumner-road. There is a spacious school and three class-rooms to each division, and the boys have also a covered playground. The site is very open and airy, and the play space ample for the 913 children intended to be received. The builder was Mr. W. Brass, the amount of whose contract was 8,097*l*., and the clerk of works, Mr. A. Higgs. All these schools are from the designs of the Board architect, Mr. E. R. Robson, and in each of them, as in all the buildings erected by the Board, special attention has been paid to ventilation and sanitary arrangements.

SCHOOL-BUILDING NEWS.

Brechin.—The erection of the new High School at Brechin has been commenced. The school is being built from the plans of Messrs. Aitkenhead & Mason, architects, Arbroath and Montrose. The estimated cost is 2,500*l*. The following are the contractors:—Mason, Mr. A. Crabb, Brechin; joiners, Messrs. Milne Brothers, Montrose; slater, Mr. John Davidson, Brechin; plumbers, Messrs. C. Middleton & Sons, Brechin and Montrose; plasterer, Mr. Robert Mason, Brechin.

Weston.—The new parochial schools, which have been built near the Midland railway station at Locksbrook, for the parish of Weston, Bath, were opened on the 21st ult. Messrs. Wilson, Willcox, & Wilson, of Belmont, are the architects, and Mr. Birch, of Belvedere, is the builder. The schools, which are intended for girls and infants, and will accommodate about 160 children, are built of blue lias, with Bath stone dressings. The roof is laid with Shortwood tiles.

Shaw-cum-Donnington.—Through the liberality of the landowners and others at Shaw-cum-Donnington, new parochial schools, intended to accommodate about 150 children, have just been erected at a cost of 1,300*l*. The schools, which comprise one large room and two class-rooms (the former having desk accommodation for 100 children, and the room for infants being capable of holding fifty), have been built by Mr. Franklin, of Deddington, from design by Mr. Butterfield, on a site presented by Mr. H. R. Eyre.

Bishops Stortford.—Extensive additional works and alterations which have been in progress at the Nonconformist Grammar School in this town during the past six months are now nearly completed. The old kitchens and out-offices, which were totally inadequate to the increasing requirements of the establishment, have been pulled down, and new kitchens, scullories, &c., with dormitories and private apartments for the matron over, have been erected in their place; while an additional block of buildings, containing three class-rooms, library, lavatory, and cloak-room, with separate studies for the masters and elder boys on the first floor, has been erected and connected with the present building by a covered way. The new buildings are of red brick, to match the old work, and have been nearly all carried up in cement, as the kitchen block had to be completed during the summer vacation. The kitchens, scullories, &c., have been paved with Victoria stone, and the class-rooms and library floors are of wood blocks on concrete. A fives court has also been built, and a laboratory and large covered playroom are now being rapidly pushed forward, and it is expected the works will be completed during the present vacation. Accommodation is now provided in the school for 150 boarders. The cost of the additions will be about 2,800*l*. Mr. John Slater, B.A., of Southampton Buildings, London, is the architect, and the contractor is Mr. J. L. Glasscock, of Bishops Stortford.

Lincoln.—Schools have just been completed

for the parish of St. Mary le Wigford. They accommodate 210 children. Infant school, 40 ft. by 20 ft.; mixed school, 43 ft. by 20 ft., with porches for each department. The style is Gothic; walls built of brick, with stone dressings; barge-boards to gables; and overhanging eaves. The cost, including out-offices and boundary-walls, is 1,036*l*. The above were built from the designs and under the superintendence of Messrs. Robert Clarke & Son, architects, Nottingham.

Halford (*Salop*).—A school for sixty children has been erected in this parish by the Hon. Lady Mary Windsor Clive, as guardian for her son, Lord Windsor. The work has been carried out by Messrs. Treasure, of Shrewsbury. The architect is Mr. Wm. Penstone, of London.

VARIORUM.

THE fourth volume of *L'Art* begins with the new year. Its success is fully deserved, great improvement being observable in both the literary and pictorial department.——Those who are interested in the elevation of the poor will find in the *Contemporary Review* a paper worth reading, entitled "The Pauper Abroad."——The new issue of Cassell's Family Bible is very profusely illustrated, and with Part I. is given a very good engraving of "Christ and St. John," from the painting by Ary Scheffer.——Cassell's "Illustrated History of India" promises to be a valuable work. With the first part of this is given a very good portait of the Prince of Wales.——*Evening Hours*, edited by Lady Barker, begins the year with a strong list of names. It is an undeniably good sixpen'orth.——The *Peep Show* is a picture-magazine for the youngest readers.——The *Sunday at Home* and the *Leisure Hour* maintain their good character.

Miscellanea.

The French Working Classes.—The committee (says a Paris correspondent) appointed to inquire into the condition of the French working classes has concluded its labours, and drawn up a bulky report embodying the result of its researches. "Out of 36 million Frenchmen," says the report, "only two million live exclusively upon their revenue. Thirty-four million, of whom 19 million belong to agriculture, depend solely for bread and cheese upon the sweat of their brow." Only 3,000,000 persons can really be classified under the head of "workmen" or "mechanics," and this number includes both employers and employed in the surprisingly small proportion of three workmen to one employer. Ever since the introduction of modern machinery, the working classes have constantly improved their position,—so much so, in fact, that their salaries have risen to the extent of 40 per cent. within the last twenty years. The average wages of a Parisian workman are now from 45 to 50 centimes an hour, or from 4f. 50c. to 5f. per day of ten hours, and in the provinces from 2f. 50c. to 3f. a day, the cheapness of living accounting for the difference in salaries. In Paris female work is paid at the rate of 2f. 75c.; and in the provinces 1f. 50c. per day. After taking all these facts into consideration the commissioners agree in the opinion that working men's services are more handsomely remunerated in France than in Great Britain, Germany, Italy, Switzerland, or any other European community.

Street Improvements at Bradford.—One of the greatest works which the Street Improvement Committee of the Corporation of Bradford has at present on hand is the new thoroughfare, to be known as Sun Bridge-street, leading from Sun Bridge to City Road. A few months since 488 yards of land were purchased for the construction of the street from Mr. James Dixon, who reserved a portion of the property facing the new street for his own use. On this plot of land, which forms the south-western side of the new street, Mr. Dixon is about to erect a pile of shops and offices. Messrs. Knowles & Wilcock, architects, have been entrusted with the designing of the building, which will have three frontages,—a short one of about 38 ft. to Tyrrel-street; one, the principal one, to Sun Bridge-street, of 90 ft.; and a third, of equal length, to Aldermanbury. The elevation will be of the Italian character, and the building will be 64 ft. from the ground floor to the top of the balustrade at the Tyrrel-street end.

New Hydropathic Establishment for Ilkley.—Among the many schemes for the extension of Ilkley is the project for the erection of the Grove Public Hall Hydropathic Establishment. An establishment for the reception of invalids and visitors has been in existence for some years under the name of the Grove Hydropathic Institution. Mr. Edward Smith, the proprietor, proposes to combine with his establishment a commodious public hall, suitable for lectures, public meetings, concerts, theatricals, &c. Plans for the projected building have been designed by Mr. Thomas Clarke. In the portion of the premises devoted to an hotel and hydropathic institution, the plans show a dining-saloon to accommodate 150 guests, a coffee and news room little inferior to those of the saloon, two billiard-rooms, six drawing and private sitting-rooms, a consulting-room, private bar, and upwards of ninety bedrooms. A portion of the basement is intended for a restaurant. The projected bath accommodation will provide, in addition to the ordinary hydropathic baths at present in use, large Turkish, Russian, and electrical baths, all on the ground floor. Another feature in the internal arrangements is the provision of a suite of bedrooms on the ground floor for the special use and convenience of patients and invalids. In the hall it is intended to provide accommodation in area, gallery, and stalls for 700 persons. It is stated that Mr. Smith purposes to carry out the works by means of a company (limited), at a cost of some 16,000*l*.

Reduction in Masons' and Labourers' Wages in Edinburgh.—Many of the master builders of Edinburgh and Leith have given notice to their *employés* of a further reduction in the rate of wages, which is to come into force on Monday, January 31st, 1876. In the spring of the present year an agreement was come to between the Masters' Association and the Operative Masons' Association, by which the parties bound themselves to a maximum rate of wages, viz., 8½d. per hour, the agreement to hold for a year, and in the event of any of the parties desiring a change on the expiry of that period, some weeks' notice to be given. Trade, however, becoming very brisk, and scarcity of labour being much felt, the operatives by giving in their warnings in squads to various employers, indirectly forced up the wages to 10d. and in some cases 10½d. per hour. About six weeks ago the masters felt themselves in a position to reduce the wages to 9d. and 9½d., and they did so without meeting opposition from the operatives. At another meeting of the Master Builders' Association held recently, it was resolved that the time had arrived at which they could reduce the rate to the maximum fixed by the agreement with the operatives, the reduction to take place at the beginning of the ensuing year. It was also agreed, as there is an abundant supply of labourers in the town, that the rate paid to this class of workmen should not exceed 5½d. for first-rate hands, their present rate being 6d. and 6½d. per hour.

New Fire Alarm Apparatus in Bradford. A new fire alarm apparatus has been fixed to one of the bells of the Town-hall. The apparatus has been fixed by Messrs. Gillett & Bland, of Croydon, and operates in the following manner:—A hammer has been fixed to a lever close to the second bell above the hour-bell. This lever is worked by a cam-wheel revolved by a weight attached to a chain which winds round a drum in a manner similar to an ordinary clock-weight. The weight is released by means of a stout wire, which is worked by a lever in the police-office, and on being released the weight slowly descends, turning round the drum, which, acting on the hammer-shaft, causes the bell to be struck a series of blows at intervals of two or three seconds. The striking continues until the weight has run to the full length of the chain, which occupies about twenty minutes, and the weight has then to be wound to the top; but it has been so fixed that the period of time can be divided into two intervals of ten minutes each, so that if a second alarm has to be rung before the weight has been wound up, there will not be any difficulty arising from the weight being at the bottom. The sound caused by the striking of the bell is so different from the ringing of any other bell in the town that no confusion can well arise, and is so loud and distinct that it can be heard at a great distance.

Alterations at the Standard Theatre.—Mr. Charles Fowler wishes it understood that he merely acted as district surveyor here, and not as architect of the works.

The Philips Hall and Trevelyan Club, Bury.—These buildings, lately opened, are situate in Garden-street, Bury. The Philips Hall is 90 ft. by 60 ft. The club adjoins the hall, and is intended to be used in conjunction therewith. The club is cellared throughout, and has on the ground-floor a club-room 26 ft. by 20 ft., library 20 ft. by 15 ft., private room 20 ft. by 15 ft., still-room 18 ft. by 18 ft., with living-room, &c. On the first-floor there is a reading-room 31 ft. by 20 ft., and a billiard-room 48 ft. by 36 ft., with private room, &c. The whole of the rooms in this club are furnished in pitch pine. The reading-room and billiard-room have open timbered roofs of pitch pine. The whole of the buildings have been designed and erected for Mr. R. N. Philips, M.P., by Messrs. Maxwell & Tuke, architects, Bury. The contractors are:—brickwork, Mr. George Rawson and Mr. Frank Dawson; masonry, Messrs. E. Hill & Bros.; woodwork, Mr. John Atkinson; plumbing and gasfitting, Mr. Robert Caton; plastering and painting, Mr. J. Hargreaves; slating, Mr. John Kay; ironwork, Mr. Robert Hall. The place is heated by superheated water, by Mr. Hoyle, of Accrington; and all the closets are Taylor's patent earth closets. The whole of the works have been superintended by Mr. John Taylor, as clerk of works.

New Skating Rink, Tunbridge Wells.—On the 21st ult. a new skating rink at Tunbridge Wells, was completed by Messrs. Howell & Son, of Hastings, from the design of Mr. Cronk, architect, of Tunbridge Wells. The building, which is of ornamental brickwork, is situated in Grove-hill-road. It is approached by a covered way. The visitor enters first the covered rink, which is 113 ft. long, 55 ft. wide, and 45 ft. high. The gallery stretches along the entire length of the building on the south side, and has a width of 14 ft. Beneath the gallery, and on a level with the floor of the rink, there is a spacious ante-room fitted up as the refreshment department, and also a skate-room, a saloon, ladies' and gentlemen's cloak-rooms, &c. The interior woodwork is of pitch-pine. On the side opposite the gallery there are seven folding doors at regular intervals apart, and surmounted by circular-headed windows and ornamental arches. These doors are thrown open, and the skaters at once have access to the outer rink. Here the floor is also 113 ft. long and 60 ft. wide.

Railways in China. — The *London and China Telegraph* states that a company has been formed in London for the purpose of introducing railways into "the Flowery Land," and that the first experimental line will be made between Shanghai and Wosung, a distance of 9½ miles. A contract has been entered into between the Shanghai and Wosung Road Company (Limited) and a well-known English contractor, and that the materials for the permanent way have already left for the Middle Kingdom. The engineer of the company went out to China some time since, and would be on the spot to commence operations as soon as these shipments arrive. It is expected that the railway will be completed, and in full working order, by next July. The line, being avowedly tentative, will be constructed on the narrow gauge of 2 ft. 6 in., the funds at present in command not admitting of a greater width.

Architect to the Hornsey School Board. At the last meeting of the Hornsey School Board, the Works and General Purposes Committee reported that forty-three applications had been received in answer to advertisements for the office of architect to the Board. These had all been considered, and bearing in mind the particular work required of the architect, they recommended the following gentlemen as the most eligible candidates, viz., Mr. T. Chatfeild Clarke, Messrs. Davis & Emmanuel, and Messrs. Lander & Bedells. The remuneration to be the usual fee of (according to published reports) 1 per cent. on all buildings erected, this to include the preparation of all plans, which are to be the property of the Board. The report was adopted, and Mr. T. C. Clarke, who is a member of the London School Board, received the appointment of architect. We conclude there is some mistake as to the rate of commission.

Houses in Flats. — A reader urges that attention should be given to the Berlin, and particularly the St. Petersburg, flat system, a superior to that of Paris, and better adapted to English domestic habits. Hamburg also is well worthy of study in this respect.

Memorial of the late Mr. Gutch.—A new stained-glass window was set up last week in Holy Trinity Church, Paddington. It consists of three transomed lights, forming six compartments, in each of which there is a large Scriptural subject, and several smaller panels of tracery are occupied by angelic figures, with musical instruments. The three lower groups represent the corporal acts of charity,—Feeding the Hungry, Clothing the Naked, and Visiting the Prisoner, &c., while the three upper are drawn from our Lord's life,—first, the Entombment; second, the Resurrection proclaimed by the Angel to the Women; third, the Ascension. The inscription at the base is "To the honour and glory of God and to the memory of her beloved husband, by Mary Gutch." The window has been executed by Messrs. Wailes, Son, & Strang, of Newcastle-upon-Tyne.

"Pure Gas" from Sewage.—If all that the inventors of this process claim be substantiated, we may look out for changes. "The saving in coal effected by the new invention is enormous, viz., one ton of best coal is used to produce 9,000 cubic feet of coal gas, and a very large quantity of furnace coal consumed to produce the extreme heat required; in producing 9,000 cubic feet of 'pure gas,' *not any* best coal is used, and only 135 lb. of furnace coal consumed; therefore the whole of the best coal and a large portion of the furnace coal is *saved*, equal to 90 per cent. of all coal used in making gas." It is estimated that after allowing a liberal margin for expenses, peculiar to some places, the cost of manufacturing "pure gas" from sewage will never exceed one shilling per 1,000 cubic feet, whilst in the majority of places it would not cost more than sixpence per 1,000 ft.

St. Andrew's Roman Catholic Chapel, Dundee.—The sanctuary of this chapel has just been redecorated. The roof, which is groined, is pale blue, studded with gold stars and white *fleurs-de-lis*, while the mullions are of crimson and buff, with gold and coloured ornaments. The cornice below the ceiling is in crimson and gold, with rich stencilled ornaments on the mouldings. Underneath this there is a painted frieze in lavender and green, with large and small gold crosses terminating in a band richly stencilled in gold. Gothic arches with pillars between are represented on the walls, the upper portion of which is of a rich blue, while the form of the arches and pillars is in gold. The new gas standards were supplied by Mr. Johnston, Small's-wynd.

The Hythe Drainage.—At a meeting of the Hythe Town Council on the 17th ult., the contract was signed for the construction of the new main drain. The contractors are Messrs. Lucas & Aird, of Lambeth, and the amount of contract is 7,000*l.* A difficulty has since arisen with regard to the contract; the plans and specifications only provide for a depth of 7 ft. over a section extending from Market-street Bridge to Twit's Bridge, whereas the Council, under the advice of the engineer, had decided upon a depth of 9 ft., in order to provide for the future requirements of the building land east of the town. It has been decided to ask the contractors to accept an additional contract for the extra depth.

Harbour Works in Jersey.—An offer has been made by Government to cede to the Legislature of Jersey the extensive harbour of St. Catherine's, situate on the east side of the island, conditionally on the States undertaking the repair and lighting of the breakwater. This breakwater was constructed twenty-five years ago at a cost of 32,000*l.*, the intention being to form a harbour for vessels of the Royal Navy, but the idea was abandoned. Since then the works have remained useless. The Jersey States have submitted to Government certain conditions upon which they will accept the harbour.

Price of Land, South Kensington.—According to the *Rock* the remaining portion of the well-known garden at Kensington-gore, in which Wilberforce and his sons were wont to disport themselves, was sold last week by Her Majesty's Commissioners for the sum of 103,000*l.* The plot has a frontage of about 50 yards to the Knightsbridge-road, and a depth of about 80 facing the east side of the Albert Hall. It has been bought with a view to the erection of a few first-class houses; the price per yard being very nearly 26*l.*, whereas, in Wilberforce's time, it might have been difficult to get as many pence.

Middlesbrough Main Drainage.—At a recent meeting of the Sanitary Committee of the Middlesbrough Corporation, tenders were submitted for the completion of the main drainage scheme, lately relinquished by Messrs. Prior, of Darlington. The following were the tenders received:—

Hannan & Co.	£21,282 10 5
Hodgson & Ridley	20,162 4 6
Jonas Franz	16,485 16 0
Jonas Franz & Son	16,072 17 0
Sharpe	13,956 0 0

It was agreed that Mr. Sharpe's tender be accepted, the figures, exclusive of extras, being 10,991*l.* 12s. 6d. Messrs. Prior's tender was 10,992*l.* 12s.

Llandudno Improvements.—At a recent meeting of the directors of the Llandudno Pier Company, it was announced that 18,000*l.* worth of shares had been taken, out of a total capital of 30,000*l.* The engineers, Messrs. Brunlees & M'Kerrow, stated that the whole of the pier, except the landing stage at the end, would be completed and open for a public promenade by July next. The sewerage works are also progressing rapidly, and it is confidently stated that the whole system will be completed early in spring.

An Appeal to the British Museum.—At the late conference of the head masters of public schools the following resolution was passed:—"That it be an instruction to the committee to communicate with the authorities of the British Museum and ask them to take into consideration the possibility of placing their vast treasures more readily at the disposal of the country for educational purposes." It is to be hoped that the trustees of the British Museum will give attention to this request.

The Wellington Hotel, Tunbridge Wells. This block of buildings, just completed, is in the Italian style. The front and almost the whole of the exterior is of brick and compo, with bay windows. The architects were Messrs. Weeks & Hughes; the general contractor, Mr. G. Weeks; the stone mason, Mr. H. Card; the plasterer, Mr. John Mason; the smith and bell-hanger, Mr. W. Catt; the hot water, baths, plumber, and decorator, Mr. G. Winnifrith. Messrs. Gilbert & Co. did the gas-fitting.

New Workhouse Chapel at Poole.—The chapel which has recently been built for the use of the inmates of the Poole Union Workhouse, was, on the 23rd ult., dedicated in due form by the Rev. J. L. Williams, vicar of St. Mary's, Longfleet. The building is capable of containing 120 worshippers, and the cost was about 450*l.* Mr. E. Pearce was the architect, and Mr. J. Dunford, the builder.

Association of Municipal and Sanitary Engineers and Surveyors.—The meeting proposed to be held at Oxford in November last (and postponed in consequence of the heavy rainfall), will be held on Friday, the 18th of February next. As the Oxford main drainage works are objects of special interest, it has been thought advisable to effect a fusion of the Home counties and Midland districts to view them.

Society of Antiquaries of London.—On the 5th inst., the council of this Society elected Mr. Frederick Ouvry, president of the society, as a temporary successor to Earl Stanhope, deceased. At the time of Earl Stanhope's decease Mr. Ouvry was senior vice-president, and for twenty years he was treasurer to the Society. Another and a more permanent successor will be elected on St. George's Day.

The Duke of Norfolk's Markets at Sheffield.—The Duke of Norfolk has consented to sell to the Corporation of Sheffield his markets in the borough for 267,000*l.*, the payment to extend over fifty-one years, at three per cent. This committee to whom the matter was referred has reported in favour of the purchase on the terms named.

Purbeck House, Swanage.—The old Purbeck House, Swanage, has been removed to make room for a larger building intended as a residence for Mr. G. Burt, of the well-known firm of John Mowlem & Co., Millbank, London. Mr. G. R. Crickmay, of Weymouth, is the architect of the new building, the foundation-stone of which was laid on the 27th ult.

The Sheffield Plumbers and their Wages. The Operative Plumbers' Association of Sheffield have passed a resolution asking 8½d. per hour, and 9d. for overtime.

Liverpool College for Girls.—The Building Committee, at their meeting held January 6th, the Dean of Chester in the chair, accepted the design sent in by Mr. John Johnson, architect, of London, for the new building to be erected in Grove-street. The whole of the designs, twenty in number, which entered into the competition, are on view in Liverpool College, Shaw-street.

Grantham Hospital.—The new hospital recently erected at Grantham from designs by Mr. R. Adolphus Came, architect, was formally opened on Wednesday, the 5th inst., by the Countess Brownlow, in the presence of the Lord Lieutenant and the Bishop of Lincoln, Lady Alford, and others. The buildings include twenty-one beds.

Royal Architectural Museum.—The Grocers' Company have given a donation of 25*l.* in aid of the Drawing and Modelling Classes for Art-Workmen at the Royal Architectural Museum, Westminster.

A New Organ for Salisbury Cathedral.—The *Hampshire Chronicle* states that a lady of Salisbury, whose name is withheld, has offered to supply the cathedral with a new organ, to cost 6,000*l.*

Dorchester.—Mr. W. Norman has been appointed engineer and surveyor to the borough of Dorchester.

TENDERS

For enlargement of the schools at Langford, Beds., for the Langford School Board. Mr. Thomas Handley, architect:—

Twelvetrees	£966 0 0
Redhouse	874 0 0
Langmead & Way (accepted)	819 0 0

For a pair of semi-detached houses, in the Bulmershe-road, Reading, for Mr. C. F. Willson. Mr. W. Ravenscroft, architect:—

Filewood	£1,264 0 0
Lewis	1,120 0 0
Grover (accepted)	1,097 0 0

For works at Ruthven, the Boltons, for Col. Tod Brown. Mr. John G. Hall, architect:—

Stephenson	£224 0 0
St. Pancras Iron Work Company	216 0 0
Wilson	182 0 0
Smith & Allder	174 0 0
Fisher	172 0 0
Thompson & S...th	169 0 0
Stimpson (accepted)	144 18 0

For erecting house and stables at Norwood, for Mr. Henry Brown:—

Johnson	£4,620 0 0
Johns	4,610 0 0
Wills	4,585 0 0
Timewell (accepted)	4,570 0 0

For the rebuilding of No. 2, Artillery-lane. Mr. William Burnet, architect. Quantities supplied by Mr. Wm. Birdseye:—

		If brickwork in cement, extra.
Saywell	£1,310 0 0	£60 0 0
Hayworth	955 0 0	60 0 0
Ellis	897 0 0	53 0 0
Stoner	887 0 0	22 0 0
Waldram & Company	869 0 0	45 0 0
Sewell & Son	787 0 0	60 0 0

For stables, cooper's shop, and cellarage, to be erected at Messrs. Threlfall's brewery, Cook-street, Manchester. Mr. George Scamell, architect. Quantities supplied by Messrs. Curtis & Son:—

	Buildings.	Ironwork.
Foggett	£7,772 0 0	£1,200 0 0
Clay & Son	6,695 0 0	1,241 0 0
Neill & Son	6,085 0 0	1,050 0 0
Southern & Son*	6,0.0 0 0	1,149 0 0
Twibill & Co.	—	1,341 0 0
Cochrane & Co.	—	1,317 0 0
Bennett & Co.	—	1,283 8 3
Smith & Wood	—	1,267 18 2
Horsley Iron Company	—	1,192 15 0
Handyside & Co.	—	1,142 0 0
Head, Williams, & Co. (accepted)		1,037 10 0

* Accepted for buildings.

For restoring the Parish Church, Great Waldingfield. Mr. A. Hakewell, architect:—

Grimwood & Sons	£1,349 0 0
Hawkins (accepted)	1,238 0 0

For London School Board schools, Bellenden-road, Peckham. Mr. E. R. Robson, architect. Mr. W. H. Barber, surveyor:—

Oliver	£8,950 0 0
Wall	8,933 0 0
Nightingale	8,873 0 0
Ennor	8,870 0 0
Perry	8,857 0 0
Macey	8,628 0 0
Hill, Higgs, & Hill	8,610 0 0
Tyerman	8,447 0 0
Downes	8,389 0 0
Jerrard	8,283 0 0
Pritchard	7,878 0 0

For alterations and additions to the School for the Indigent Blind, Southwark. Mr. R. Drew, architect. Messrs. Fuller & Deacon, surveyors:—

Colls & Sons	£1,390	0	0
Jarrett	1,387	0	0
Hill, Higgs, & Hill	1,320	0	0
Adamson	1,287	0	0
Candler	1,200	0	0

For alterations and additions to 15, Upper Grosvenor-street. Mr. F. Todd, architect:—

Brass	£3,677	0	0
Hill, Higgs, & Hill	3,490	0	0
Aldin & Son	3,260	0	0
Macey	2,748	0	0
Allen	2,720	0	0

For the erection of a further block of four warehouses, in Great Guildford-street, Southwark, for Mr. Joseph Kitchin. Mr. Alex. Fraser, architect:—
Downs & Co. (accepted).

For rebuilding three shops in the Edgware-road, for Mr. Tooley. Mr. J. Wilkinson, architect:—

Baker	£7,500	0	0
Man	7,490	0	0
Sharp & Maxwell	7,449	0	0
Ward	7,100	0	0

TO CORRESPONDENTS.

Erratum.—In notice of Hanover-square Club, for "Bonden & Darrell" read Bowden & Dorrell.

W., Son, & S.—J. K.—C. F.—M. L.—M. W.—H. S.—H. B. H.—R. A. C.—W. P.—J. J.—L. & W.—F. C.—F.—Major H.—W. C. T.—E. S.—W. F.—W. & Co.—A. C.—J. M. G.—W.—T. S.—Col. S.—R. A. L.—B. L.—W. H. W.—M. L. C.—J. N. & Sons.—W. N.—H. H. & H.—G. G. & Sons.—H. M.—F. M.—S. & D.—J. McD.—D. & Co.—J. P. S.—W. L. B. (too late. Next week).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We give with this Number, as a Supplement, an INDEX and Title-page to the Volume of last year. A COLOURED TITLE-PAGE can be had, Gratis, on personal application.

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